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Railway Age

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Railway Age

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In This Issue

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100 MILES AN HOUR CALLS FOR ALLOY STEELS

When 60 miles an hour was high speed service plain carbon steel could take the stresses. « « « But doubling train speeds brings far greater shocks, vibration and unexpected stresses to all moving parts. « « « Only special alloy steels are fitted for the new conditions. « « « Strong nickel steel boiler sheets and stainless firebox sheets to withstand high pressures; Agathon alloy forging steel that is unaffected by low temperatures; corrosion-resisting sheets and boiler tubes of Toncan Iron; staybolts of alloy steels that are stronger and tougher than the old materials; stainless steels for the new high speed trains. « « « These are just a few of the many special steels—in addition to a wide range of plain carbon steels—offered by Republic to meet the new conditions of modern railroading.

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Government Management of Railways Being Attempted

Co-ordinator of Transportation Eastman issued a statement last week that he intends to issue orders requiring the unification of railroad terminals at eleven places in various parts of the country. "After this first step," he said, "the co-ordinator is prepared, if necessary, and so far as the time limits of his office permit, to proceed with other steps of increasing magnitude, working up gradually from small to larger projects, but always with a willingness to stand aside if the railroads are able to proceed on their own momentum." The unifications he intends to order soon are only a part of a program of numerous similar unifications by which he estimates that $50,000,000 of annual "waste" can be eliminated.

The decision of the co-ordinator to begin issuing such orders is a development of far greater significance and importance than most persons realize, especially in view of the fact that he has asked Congress to extend for five years the authority sought to be given him by the Emergency Transportation Act. There can be no valid criticism of the co-ordinator for beginning to issue orders. The Emergency Transportation Act was adopted by Congress upon the assumption that there were large wastes in railroading due to duplications of facilities and service. It directed the co-ordinator to ascertain whether there were such wastes, and, if he decided there were, to try to secure their elimination. He has concluded that they exist, and that he knows why and where. Having been unable to get the railways to do voluntarily what he considers desirable regarding them, he is merely performing the duty the law imposes upon him by trying to compel them to be done.

Should Government Eliminate Wastes in All Industries?

While there can be no valid criticism of the course being taken by the co-ordinator, it raises a vital question regarding the government policy represented by the law he administers. A furious business and political struggle is being waged against government regimentation of and competition with private investment and enterprise. The railways are still privately owned, and, theoretically, still privately managed. Before passage of the Emergency Transportation Act they were the most comprehensively and drastically regulated of all industries. Suppose there are duplications in their facilities and services. There are also duplications in the facilities and service of every other industry. Is there not as much economic justification for the exercise of governmental authority to reduce competitive wastes in other industries as in the railroad industry? Advocates of a planned economy and of socialism answer in the affirmative. The alleged existence of multifarious, large and preventable competitive wastes in a free system of capitalism is their principal ground for attacking it.

Nobody who knows the facts will question that economies could be effected by greater co-ordination of railways. And there is a great difference between economies and retrenchment. Retrenchment merely postpones and increases expenditures that ultimately will have to be made. Economies effect actual and lasting savings which can be used to reduce the retrenchments otherwise necessary. Real economies tend to increase net operating income, which improves railway credit and enhances the ability of the railroads to improve their facilities and service, and to increase economy of operation. The railroads should do everything that the co-ordinator orders, and everything that he does not order, that will increase economy of operation without impairing service. Real economies benefit all concerned.

Ordering—and Prohibiting—Economies

All interests do not recognize this. The labor unions got section 7-B interpolated in the original draft of the Emergency Transportation Act. It limits the reduction of employment that the railways may make in effecting co-ordinations. The principal saving by any co-ordination that effects actual economy will be in labor costs. Reduction of employment by co-ordination does not necessarily reduce total railway employment. The elimination of labor where it is not needed effects savings which make practicable the employment of more labor where it is needed. Nevertheless, the co-ordinator himself has given an interpretation of section 7-B which has made it the principal obstacle to the accomplishment of economies by the very kind of unifications which he now announces that he intends to order.

The railways are confronted with the alternative of contesting the co-ordinator's orders before the Interstate Commerce Commission and the courts, or of carrying them out. We think they should proceed

with co-ordinations wherever they promise economies, but should, at the same time, carry to the Supreme Court of the United States the question of the constitutionality of the Emergency Transportation Act, and especially of section 7-B. Under their contracts with the labor unions they already are paying for much work that is not done. Here is an economic waste which should be attacked and eliminated. The economic waste of paying for still more work that is not to be done, which Congress has tried to force upon them by section 7-B, should not be tolerated unless the courts hold that it must be.

"Wastes"—with Operating Expenses Reduced 44 Per Cent

Meantime, consider the anomalies of the situation with which the railways are confronted. They are to be ordered by the co-ordinator to effect economies—most of which cannot be accomplished because the law authorizing the co-ordinator to issue orders forbids them to be accomplished! The assumption upon which this law is based is that there is competition between the railways which causes excessive costs of transportation that the public ultimately must pay, and that in the public interest costs of transportation must be reduced by governmental coercion. This ignores the fact that private management, without governmental coercion, reduced railway operating expenses from $4,604,000,000 in 1921 to $2,575,000,000 in 1935, or 44 per cent—or by an annual amount 40 times as large as the co-ordinator estimates would be saved by all terminal unifications, small and large, that he concludes are desirable. It ignores the fact that, although freight traffic was smaller in 1933 than in 1921, private management reduced the average cost of hauling a thousand tons of freight one mile from $10.78 to $6.48, or 40 per cent. All conditions considered, can any other industry show a better record? If not, why should the railroad industry, and not other industries, be subjected to governmental coercion to effect economies by means prescribed by government officials?

Not Regulation—but Management Without Responsibility

It may be said that there is justification for the government dealing differently with the railways and other industries because the railways render a service "affected with a public use." This is a constitutional —that is, a legal—justification for government *regulation*; but it is not a constitutional justification for governmental *management;* and the vitally important fact regarding the co-ordinator's proposed orders that needs to be emphasized is, that they will be an attempt to begin government *management* of the railways.

It is true they will be an attempt at only partial management; but they will be an attempt at partial management; and if Congress can give the co-ordinator the power that, by issuing these orders, the co-ordinator will assume it can and already has given him by passing the Emergency Transportation Act, then it can, by passing additional similar legislation, give him complete power of management. His proposed orders assume that he already has power to compel radical changes in the facilities, service and operation of every railway in the country; in the competitive relations of different railways; in the relations between them and their patrons and their employees. The exercise of such power would plainly not be regulation of management, but management itself—and management without any responsibility whatever either to railway security-owners or to the public for results; for the Emergency Transportation Act does not make the government responsible to anybody for the results of any orders the co-ordinator may issue.

Some persons believe the government should take over railway management, but usually they are consistent enough also to advocate government ownership. It is an obviously sound principle that the government should not constitute itself the manager of any property without becoming its owner or assuming full responsibility to the owners for the results of its management.

Not a Question of Expediency, but of Vital Principle

To concede that there are wastes in the management of an industry the operating expenses of which have been reduced 44 per cent within fourteen years is not to concede that it is wastefully managed, and that, therefore, the public interest requires government management of it. It is merely to concede that its management has some of the imperfections that inevitably characterize human management of anything.

If detection by government investigators of imperfections in railroad management justifies legislation and issuance of government orders to correct them, then detection by government investigators of imperfections in the management of any and every other industry justifies the issuance of government orders to correct them. If we should have government management of all industries, we should have also government ownership of all of them—which is socialism. If we should not have government ownership of the railroads or any other industry, then we should not have government officials issuing orders that should emanate only from responsible managements. When the government assumed management of the railways during the war it assumed responsibility for the results by guaranteeing their security-owners certain fixed financial returns. That the co-ordinator or anybody else believes that it would be expedient for the railways to carry out his orders does not alter the fact that their issuance would be an attempt at government management without responsibility for results; and the railways should not allow any such attempt to go unchallenged. The question of expediency is comparatively unimportant. The principle involved is vital.

How Government "Reduces Costs of Transportation"

While the government is thus trying to compel coordination of railways to effect savings in the cost of

railway transportation it is spending annually billions of dollars of the taxpayers' money to increase the cost of transportation as a whole. Why is there more need for co-ordination of railways than ever before? Because the government's policy of increasingly subsidizing carriers by air, highway and waterway, like a drunken sailor, without trying to manage them, or even regulating them as it does the railways, is rapidly increasing the duplication of all transportation facilities and services, with the effects of tending to divert more and more traffic from the railways and to force them to increase their investment and operating expenses and reduce their rates to meet outside competition. The government has the effrontery to hold the railroads up to the public as wasters because of duplications of their facilities and service the cost of which is not a spit in the ocean compared with the transportation wastes being caused by its own reckless and idiotic expenditures.

Nor is this all. Within the last three years the government's policies of advancing wages and prices have increased railway operating expenses three hundred million dollars annually. At the same session during which it extended the co-ordinator's authority under the Emergency Transportation Act, Congress passed the Railroad Retirement Acts which, from the beginning of their operation, would increase the annual operating expenses of the railways as much, and within a few years would increase them four times as much, as it is estimated they would be reduced by all the small and large terminal unifications that the co-ordinator has announced he proposes to order. And the co-ordinator himself is advocating legislation for the establishment of a scheme of dismissal wages which would further increase operating expenses.

Does the government really desire to reduce the cost of transportation to the public? Does it desire even to reduce the cost of railway transportation to the public? If so, in spite of the co-ordinator's proposed orders, it has a most extraordinary way of showing it.

The Railroad Example—a Warning to Business

The business interests of the country may well take the railroad example as the most powerful possible argument against every form of government interference with business. Railway regulation began merely with legislation to prevent unfair discriminations in service and rates and a commission to enforce such legislation. The government never was satisfied with the results of its own regulation, and therefore year after year increased it until it had extended it to every phase of management. Now, being dissatisfied—as it well may be—with the effects on the railways of all its regulating of them and subsidizing of their competitors, it is attempting, without reducing its regulation of the railways, or its subsidization of their competitors, to assume irresponsible management of the railways.

Other industries should be warned by this experience to resist every effort of the government similarly to regulate and promote competition with them; and the railways, with the backing of other industries, should demand that the government shall cease its efforts to take over their management and shall change its policies that are driving them toward both government management and ownership. Railroad experience has shown, and is now showing as never before, that, once it has begun regulation, there is no limit to the power that government will attempt to exercise over an industry excepting a limit set by public sentiment.

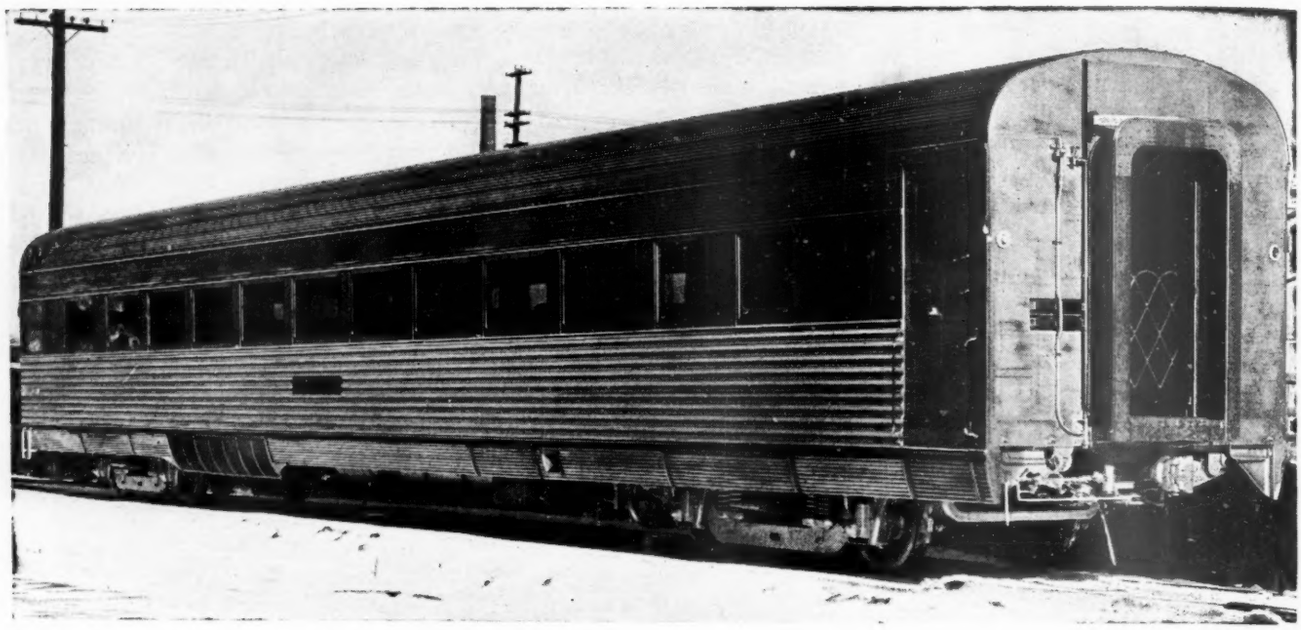
How About the Barge Canal, Mr. Parkinson?

At a recent meeting of business paper and newspaper editors and publishers in New York, T. I. Parkinson, president of the Equitable Life Assurance Society and president of the New York State Chamber of Commerce, made a short but forceful speech on the relationship of government and business. He told of the difficulties of investing policyholders' money safely in public utilities when it was uncertain when the governmen would invade the field of a utility with a public power project. He said that the fear of punishment by government for misdeeds is healthy for business, but that the fear of "government foolishness" is decidedly not healthy; and that the fear of the utility industry of unreasoning persecution is holding up expansion which "would spin the wheels of many industries and relieve unemployment faster than any bill."

All this is very true. But it is not the utility industry primarily which is injured by government competition. The money the government has spent to compete with the utilities is but a drop in the bucket compared to that which it has spent and is spending for federal aid roads and waterways to compete with the railways. Such governmental injustice is, however, viewed complacently by many business men because their businesses benefit from it.

Last year the transportation committee of the New York State Chamber of Commerce rejected a proposal by its chairman, Thomas F. Woodlock, that the Chamber favor the levying of tolls on the New York State Barge Canal, and instead voted that such tolls be not levied since they were not levied on federal-owned waterways. The New York business men for whom the Chamber speaks are thus not above accepting taxpayers' largess in the form of free use of a costly canal, in competition with the railways.

It is an excellent and praiseworthy thing for the business men for whom Mr. Parkinson is spokesman to interest themselves in government and to condemn unwarrantable governmental "foolishness." The effectiveness of their objection would, however, be augmented if they would stick to their principles and condemn "foolishness" even when, as in the case of the Barge Canal, they are its beneficiaries.



The Atchison, Topeka & Santa Fe de Luxe Chair Car of Stainless Steel Construction

Santa Fe Buys Stainless Steel Coach

De luxe facilities for long-distance travel provided in car built by the Edward G. Budd Manufacturing Co.

A MAIN-LINE passenger coach for long-distance service, the body of which is fabricated of stainless steel by the Shotweld process, has been delivered to the Atchison, Topeka & Santa Fe by the Edward G. Budd Manufacturing Co., Philadelphia, Pa. This coach, the first of its kind to be built, is of full conventional width, but weighs only about half as much as an ordinary Santa Fe chair car. Over the buffers the car is 79 ft. 8 in. long. Over the side rails the width is 10 ft. ⅛ in., and inside it is 9 ft. 3¼ in. The height from the rail to the top of the roof is 13 ft. 6 in. The car has an oval, or turtleback form of roof and the sides end in inwardly curving skirts which extend 13⅜ in. below the bottom of the underframe cross members.

The Men's Lounge

Although designed for use in long trains of heavy cars, with center sills capable of withstanding more than the maximum required buffing load of 400,000 lb., the light weight of the car, ready for service, is only 83,530 lb. The car body, completely equipped, weighs on the center plates 52,000 lb., of which 14,000 lb. is accounted for by the stainless steel in the structure. The trucks weigh 28,800 lb. The remainder of the service weight is made up of water and supplies. A comparable conventional Santa Fe passenger car weighs about 160,000 lb. light. An unusual feature of the arrangement of the car is the inclusion of a vestibule at one end of the car only.

While equal in size to an 80-passenger coach, it has seats, spaced on 41½-in. centers, for only 52 passengers. The remaining space is devoted to lounging rooms and toilet facilities comparable to those in Pullman cars.

Interior Finish and Decorations

The interior walls of the car are finished in Flexwood veneer on Presdwood or steel. American walnut has been used from the floor to the polished stainless-steel window rail, a brown oriental wood in the panels between the windows and on the partitions at the same level, and prima vera, similar to a light oak, on the under side of the overhead baggage racks. The ceiling is finished in light ivory.

The Karpen double seats are of the revolving and reclining type, the backs easily adjustable to three posi-

tions by the passengers, and are upholstered in a Massachusetts two-tone gray-green frieze, especially designed with the theme of the motif taken from the giant cactus and the palm tree, in all-over pattern effect. The seat cushions are Dunlopillo rubber cushions.

The window curtains are of the roller type. The inside face color of the curtain fabric recalls the gray-green of the upholstery and is woven with a diamond pattern, shadowed down to simulate a relief effect. The outside of the curtains is in aluminum to serve a dual purpose, that of being in color accord with the car's exterior of stainless steel and to act as heat reflecting surfaces.

Weight, durability and decorative qualities prompted the use of $\frac{3}{16}$-in. jaspe linoleum as floor covering. Under the seats the color is Malay brown and the direction of the jaspe is with the car, while in the aisle the color is driftwood gray. Diamond motifs are formed by running the jaspe transverse to the wall line, except in the areas making up the diamond shapes. The diamonds are outlined by $\frac{1}{4}$-in. bands of canary yellow, which are also employed on both sides of the aisle, with a 2-in. black border adjoining the ends of the seats. Quatrefoil ornaments in jade green are located at the intersections of the diamond stripes. There are nine of the diamond shapes within the length of the main body of the car.

Interior of the Women's Lounge

The Lounge Rooms

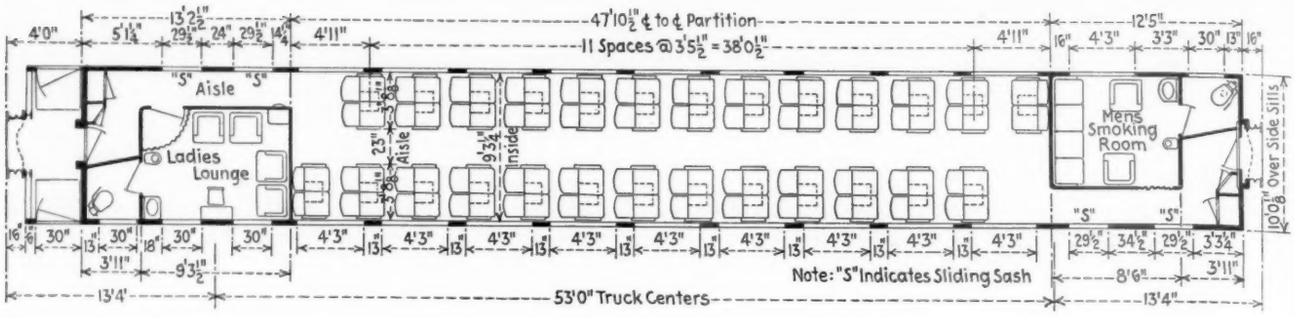
At one end of the car is a spacious smoking room for women with four individual chairs, a dressing table and chair, and a full-length mirror. This room is finished in harewood, with the ceiling finished in a medium gray. The upholstery is a light tan with small fleur-de-lis figures, and the exposed woodwork is in bleached walnut. The floor is in plain jade linoleum with a wide evergreen border. The lavatory and dental fountain are also jade green.

The men's lounge seats six, four on a davenport across one end and two in individual chairs. In this room both the walls and ceiling are quartered oak with beamed effect on the ceiling. The upholstery is in maroon leather and the floor is covered with jade linoleum, having a wide border of black all around the room. The lavatories in this room are black.

Structural Features

The same general principles of construction previously employed in the lightweight articulated trains built by the Budd Company are followed in the construction of this coach. These are the use of structural members of thin-gage stainless steel formed by rolling or folding to provide sections of the required stiffness and joined by the Shotweld process. The type of sections used in this car, however, show considerable modification from those

Interior of the Passenger Compartment

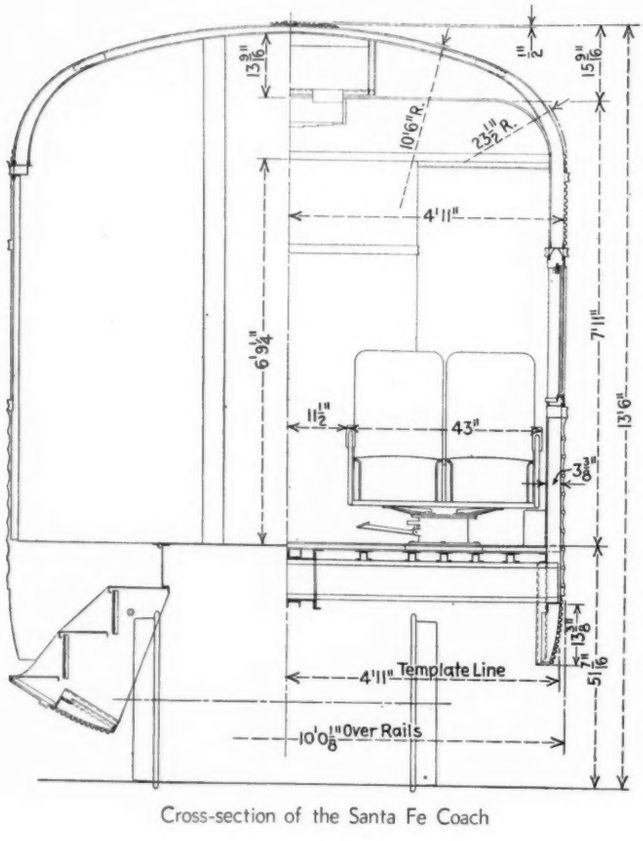


Floor Plan of the Santa Fe Stainless Steel Coach

characteristic of the earlier trains. In the trains the frame of the structure is made up of flanged box sections fabricated in truss form. The characteristic feature of the Santa Fe design is the replacement of the truss members by open sections of inwardly flanged channel form. Those for the cross members of the underframe are 8½ in. deep and the side posts 10½ in. deep. The use of open sections, reinforced where necessary by tie straps across the open side or by fillers, not only simplifies the construction of the sections themselves, but also facilitates the entire fabrication of the structure.

The underframe structure consists essentially of center sills of top and bottom channel sections which are supported by channel cross bearers and tied together at the sides with corrugated vertical webs between the cross bearers. The center-sill channels are 12 in. wide by 1½ in. deep, with 1½-in. outward extending flanges parallel to the web. Each channel is formed in two parallel pieces joined on the longitudinal center line by welding through the vertical center flanges and each is further reinforced by two 3-in. channels placed within the main channels, and welded through their webs to the web of the main channel.

The cross members, which are spaced 27 in. apart, are



Cross-section of the Santa Fe Coach

8½ in. in depth by 1½ in. in width and, like the center sills, are of 1/16-in. stainless steel. The flanges are ell-shaped with the legs which are parallel to the web extending inward toward each other and partially closing the open side of the member. These channels are joined by welding to the webs of the top and bottom center-sill channels and at the ends to the side posts. Five longitudinal floor stringers on each side of the center sill rest upon the top of the cross members and form the support for the corrugated stainless steel floor sheets. These longitudinal members are of channel section, with the outwardly extending flanges on the open side welded to the cross members. Flanges accessible for welding to the floor are provided by strips of suitable width welded to the backs of the channels.

The bottom chord member of the side frame consists of a side sill of zee section attached to the bottoms of the posts and the curved skirt which extends below the underframe. This skirt is a corrugated sheet attached to vertical supports at each cross member.

At the ends of the car the center sills are attached to a Cromansil combined sill and bolster structures of Lukenweld construction.

The center sills are designed to withstand a 400,000-lb. buffing load. Because of the distribution of end-load stresses over the entire underframe and floor structure and into the sides of the car, the structure as a whole is capable of withstanding a materially greater load.

The principal members of the side frame are 10½-in. channels of 1/16-in. stainless steel similar in form to the cross members of the underframe, except that the width of the section is 3 in. These channels are tied together at the longitudinal rails, one of which is located between the side sheathing and the skirting at the side sill, one between the top of the letter board and the roofing, and two members above and below the windows, respectively. The sheathing below the windows is in the concave-strip form characteristic of this builder. The surface of the sheathing between the windows is flat, while that above the windows and on the roof is formed in narrow corrugations, except for that portion of the letter board on which the name of the road appears, which is flat.

The roof, which serves as a stiff top chord member of the structure, is made up of carlines of channel form with the corrugated roof sheets welded in place on the outside. At the ends of the car a top collision bulkhead is formed by a flat reinforcing sheet applied over the carline for a distance of 48½ in. back from the end of the car.

End posts built up of stainless steel in deep, relatively heavy sections are securely framed into the underframe at the bottom and into longitudinal members securely attached in the reinforced portion of the roof at the ends. Any load applied directly against these end posts is resisted at the top by the entire roof structure.

The entire car body is insulated with 3-in. Dry-Zero

airplane blanket. The sides above and below the windows and the ceiling are finished with Masonite Presdwood which forms the foundation for the Flexwood surfaces. The windows are of double shatterproof glass with nitrogen hermetically sealed between the inner and outer panes to prevent the collection of moisture, resulting in steaming and frosting. All partitions within the structure are tied into the body structure and designed to serve as bulkheads.

The floor, which is built up on the corrugated stainless-steel sheet covering the entire underframe, consists of cork fillers in the corrugations, covered with a 1-in. cork sheet. To the cork surface is attached the linoleum wearing surface. Below the floor is a 3-in. airplane blanket of Dry-Zero held in place by a light stainless-steel sheet welded to the under side of the underframe members.

Air Conditioning, Heating and Lighting

The cars are equipped with the Safety-Carrier air-conditioning system and Vapor steam-heating equipment.

The refrigeration unit is placed beneath the car. The condenser air inlet and outlets are in the skirt, the design of these openings being such as to blend with the car construction. The refrigeration unit is fitted with automatic devices which make possible the operation of the equipment through runs where outside temperatures requiring cooling and outside temperatures below freezing are encountered, without servicing en route.

The air-conditioning unit is mounted over the men's lounge. Complete access for servicing is possible through inspection doors in the ceiling. Conditioned air is delivered to a center duct for distribution through the car.

Outside air is taken in through louvres in the side of the roof and through filters placed vertically in the space between the roof and ceiling. Sufficient filter area for outside air is provided so that all the air circulated through the car may be outside air. A single control operates the dampers at the outside air inlet and the return air grille to give the desired make-up to the air circulated in the car. When the cooling system is in operation the proportion of outside air must be limited to 25 per cent, but when cooling is not required the proportion of outside air may be increased to 100 per cent, resulting in much better car conditions than when the lower content of outside air is maintained under all conditions.

By the selection of light materials and a design which realizes to the fullest extent the saving possible with those materials the weight of the equipment, including a water supply for a ten-hour run, has been decreased 35 per cent from the weight of previous equipment of equal capacity.

The duct for air distribution is located under the center of the roof and above the ceiling. Below the center of the ceiling is an outlet duct running the entire length of the passenger compartment of the car, the under side of which is finished in a stainless-steel panel. Grille openings, placed at intervals in the sides of this duct, admit the conditioned air to the car body. The heat-exchange equipment is provided with both cooling and heating elements, the overhead heating being supplemented with the usual floor line radiators. The operation of the heating and air-conditioning equipment is thermostatically controlled through a Vapor control panel.

The lighting of the interior of the passenger compartment is provided from two sources. Alternating between the air inlet grilles in the sides of the ceiling duct are placed Transilux fixtures, eight on each side. These provide a semi-indirect lighting, diffused from the ceiling, which may be dimmed for night use. On the under side of the luggage rack over each seat is a Prismatic Lens light which is designed to provide from 7 to 8½ foot-candles at the reading plane for seated passengers. These lights are turned off at night.

The lounges are provided with wall Louvelites and Columlites at the lavatories and dressing table. A canopy light is provided for the full-length mirror in the ladies' lounge. Ceiling lights of the Prismatic Lens type are provided in the corridors.

The fixtures were furnished by the Safety Car Heating & Lighting Company. Other features of the lighting

The Hinged Steps Are Opened and Closed Automatically with the Vestibule Trap Door

equipment are the Safety control panel, the truck-mounted and flat-belt-driven Safety 7½-kw. generator, and an Exide 850-amp. hr. battery.

Trucks

The cars are carried on four-wheel trucks with 5-in. by 9-in. journals, fitted with Satco bearings. The wheels are two wear, rolled steel, finished with cylindrical treads, 35 in. in diameter. The wheel base of the trucks is 9 ft. and they are spaced 53 ft. between centers.

The truck frames and bolsters are of nickel cast steel and are designed for the usual equalizer type of spring suspension. The bolsters are fitted with lateral hydraulic shock absorbers, and sound insulating inserts of rubber have been applied. The trucks are equipped with the Unit Cylinder type clasp brakes.

The cars are equipped with Miner light-weight type draft gears and buffers and Alliance alloy-steel couplers. The air brakes are Westinghouse UC type.

The design of this car was developed jointly by the engineering staff of the Atchison, Topeka & Santa Fe and the Edward G. Budd Manufacturing Co. Sterling B. McDonald of Chicago collaborated in the preparation

of both the interior decorations and the color selection.

This coach will be operated in regular service on the heavy main-line trains of the Santa Fe to develop fully the facts as to the serviceability of a car of this type of construction when used interchangeably with heavy standard equipment.

Report of Bureau of Safety

THE Interstate Commerce Commission has issued a pamphlet of 51 pages containing the annual report of the director of the Bureau of Safety for the fiscal year ended June 30, 1935, and containing also matter, relating to the Bureau, taken from the annual report of the Commission.

The *Railway Age* of January 11 had an account of the Commission's annual report, in which there were given, page 119, notes on some of the principal features of the Bureau's work. This article contains further details of those features, together with other matters.

The number of cars and locomotives inspected by the Bureau during the year was 1,332,700, and the number of safety appliance defects per 1,000 cars and locomotives inspected was 26.02. The totals and percentages do not vary greatly from the record of the preceding year. A note is made of the action of the Association of American Railroads, requiring that after January 1, 1945, freight cars in interchange service must be equipped with AB brakes. At present, the number of railroad-owned cars thus equipped is 29,188, which is 1.42 per cent of the number owned by the railroads. The A.A.R. has added to its rules, to take effect January 1, 1938, a braking ratio for freight cars offered in interchange. Air-brake manufacturers have developed a standard type of brake equipment for light-weight, high-speed trains; this is called "schedule H.S.C."

The Bureau is continuing its studies of container cars, light-weight streamline trains and automatic train-pipe connectors. The matter of slack in freight trains has been considered, and the A.A.R. has adopted rules of recommended practice with draft gears; and the Bureau has made inspections at railroad shops, looking to improvement in this practice. Inspections have also been made concerning the maintenance of brake and train-signal equipment, with special attention to the use of gages prescribed for use in triple-valve repairs. Running boards for house cars, made of material other than wood, are still being used experimentally, under the order of December 17, 1932, and the Pennsylvania now has 100 cars thus equipped.

The regular reports have been made to the Commission under the hours-of-service law. The number of infractions of the rules in train service, 2,419, is 271 greater than in 1934, this being due principally to derailments and relief service. Infractions of the rules by telegraphers continue and are generally due to sickness of operators or in operators' families.

The number of miles of railroad operated under the block system, January 1, 1935, was 110,367, of which 62,804 miles was automatic. During the calendar year 1934, there was a decrease of 61.5 miles of road operated under the automatic block system, and a decrease of 1,390 miles non-automatic.

The mileage of railroad equipped with automatic-train control July 1, 1935, totaled 8,253; number of locomotives, 5,757. Mileage of road using automatic cab signals without A.T.C., 2,215; locomotives, 3,510. Tables are given showing the kind of apparatus on each road, also records of performance. Under automatic train control (Table 4), there were 6,471 false restrictive operations and 18 false-proceed operations; under the head of cab signals (Table 5), 3,209 false restrictive and 30 false proceed. In Table 6, the 48 false proceed operations are listed, with causes where known. The 18 false-proceed records under A.T.C. came from eight roads and the 30 under cab signals from three roads.

Regular inspections have been made of A.T.C. and cab-signal installations, and the above-mentioned tables are made up from the regular reports sent in by the railroads.

Tests were made of cab signals on the Chicago, Milwaukee, St. Paul & Pacific, and of the composite apparatus on the Union Pacific train M-10,001 designed for interchangeable operation over the C. & N. W. and the Union Pacific. Six roads report 113 locomotives equipped for interchangeable operation with different types of apparatus.

Investigations were made of four collisions occurring on A.T.C. or cab-signal territory, none of them, however, due to any fault in these appliances.

Following certain accidents, the Commission has allowed the reset switch for A.T.C. to be fixed in the cab, and certain roads are testing such arrangements, but few have availed themselves of the authority granted. The Commission has noted that when A.T.C. apparatus fails trains are sometimes operated through to the end of the trip without special protection, and the report implies disapproval of this laxity.

Notes are given of the accidents investigated by the Bureau during the year, of which there were 31 collisions, 41 derailments and one other. Investigations have shown severe losses from defective arch-bar trucks. Accidents due to this cause, and other important accident investigations have been reported from time to time during the year in the columns of the *Railway Age*.

Twenty-one pages of the report are filled with statements (giving names of roads) showing details of car inspections and other data referred to in the foregoing paragraphs.

Violations of the safety-appliance laws, to the number of 102, comprising 169 counts, were transmitted to the United States Attorneys for prosecution; of these, 138 counts were confessed, 11 were dismissed and 5 tried. Four suits, one each in California, Indiana, Washington and Montana, are reported at length. Eight other court decisions are noted.

Grade-Crossing Accidents.—The number of accidents on highway grade crossings in the calendar year 1934 was 3,728, resulting in the death of 1,554 persons and injury of 4,300. Automobiles were involved in 3,317 of these accidents, and 49 derailments of trains resulted under this head. The total number of crossings of railways with highways on December 31, 1934, was 234,820, which was 1,110 less than one year before; but there had been numerous additions as well as eliminations. Note is made of the peculiarly distressing crossing accidents occurring in 1935 at certain places.

THE NIGERIAN RAILWAY, government-owned line of Great Britain's African crown colony, Nigeria, reported, for the year ended March 31, 1935, a deficit after interest charges of £74,314, a decrease of £172,354 as compared with the 1933-34 deficit of £246,668. This improvement is attributed by the annual report to "a combination of slowly improving trade and the unrelaxed efforts of railway officers to secure economies." Gross 1934-35 revenues were £141,376 in excess of those for 1933-34, while at the same time operating expenses were reduced by £31,949.

Terminal Merger Orders Proposed

Declaring railroad machinery on dead center, Eastman plans for test in eleven cities

WASHINGTON, D. C.

PLANS were announced by Co-ordinator Eastman on February 1 for beginning the application of "outside pressure from government authority" to promote greater co-operation among railroads in the direction of elimination of competitive duplication which he had forecast in his recent report. With a view of obtaining a test of the co-ordination policy of the emergency transportation act and of the authority of the government to enforce it, he is taking the necessary preliminary procedure steps, he announced on February 1, and is proposing to issue orders "unless unforeseen reasons for non-action are presented," requiring the unification of railroad terminal facilities at Worcester, Mass., Mechanicville, N. Y., Grand Rapids, Mich., Jacksonville, Fla., Montgomery, Ala., Meridian, Miss., Freeport, Ill., Des Moines, Ia., Council Bluffs, Ia., Beaumont, Tex., and Ogden, Utah.

"While the co-ordinator would prefer voluntary railroad action," he says, "and has done everything possible to encourage such action, he is convinced that the time has come to use the authority which the act gives him, and directs him to exercise so far as may be necessary to accomplish the purpose sought. The railroad machinery for handling these matters is apparently on dead center."

In his report to the President and Congress on January 21 Mr. Eastman had said that such orders were under consideration. "Some of the railroads have been willing to act," he says, "but others have held back." If the railroads accept the orders without contest a test on a small scale would be afforded of the efficacy of the projects and the co-ordinator is prepared to go farther. If they decide to oppose them a legal test would be afforded as to the power of the co-ordinator. Opportunity would also be afforded for a demonstration of the attitude of labor, which is known to be opposed, and of the shippers interested in the operations at the various terminals. He had previously issued but one order, prohibiting a change in passenger train service between Chicago and Florida, which the railroads concerned sought unsuccessfully to have enjoined but later decided not to appeal to higher courts.

As the first step in this exercise of authority Co-ordinator Eastman has selected 11 "very simple" terminal unification projects, in comparatively small cities, out of over 5,000 terminal situations which have been surveyed by his Section of Regional Co-ordination and by the railroads, and has adopted plans "which committees of railroad officers have themselves developed."

"None of these plans presents any great difficulty," he said. "No railroad need fear that its competitive situation will be impaired, and it is clear that the public will be given, not worse, but better service and without any loss of competition. The savings on these particular projects will be substantial. They will serve as a clear and simple test of the co-ordination policy of the emergency act, and of the authority of the government to enforce it.

"After this first step, the co-ordinator is prepared, if necessary, and so far as the time limits of his office permit, to proceed with other steps of increasing magnitude, working up gradually from small to larger projects, but always with a willingness to stand aside if the railroads are able to proceed on their own momentum. Fifty millions of waste can probably be avoided by terminal unifications, but these are only a part of the program. It is believed that the opportunities for savings and, even more important, for traffic gains from other improvements which can be made run into larger figures. The groundwork for these improvements has been laid, and the time has come to get on with them.

"Before orders can be issued, certain procedural steps are necessary under the law. The regional co-ordinating committees have had plenty of opportunity to act, but all technical doubt on this point must be removed. The regional labor committees must be given reasonable opportunity to present their views to the co-ordinator. The state authorities must also be notified. In addition, the co-ordinator, in accordance with a promise which he has made in public statements, will give similar advance notice, not required by law, to the commercial interests of the communities affected. These procedural steps are being taken. Unless unforeseen reasons for non-action are presented, the orders will thereafter issue."

Mr. Eastman also said:

One of the main purposes of the Emergency Railroad Transportation Act, 1933, is to eliminate waste in railroad operations, particularly the waste which is caused by failure of the railroads to co-operate with each other in joint service or joint use of facilities, where good opportunity exists. The co-ordinator is the federal officer appointed to further this purpose. The act enjoins the railroads to accomplish the object through regional co-ordinating committees, but in default of voluntary action the co-ordinator is authorized and directed to enforce action by order.

Since the appointment of the co-ordinator, extensive surveys have been made, at his initiative and under the supervision of his staff but with the co-operation of the railroads, of the opportunities for getting rid of unnecessary expense. They have also gone into the opportunities for increasing traffic and revenues by giving service and charging rates better suited to the new and changed conditions created by the rapid development of other forms of transportation.

It is perfectly plain that if the railroads are to secure maximum traffic and revenues and furnish maximum employment, in the interest of shippers, travelers, investors, and their own employees, they must be able to furnish at less expense much service which will be better than they now furnish, and charge less for it. Hence the need for reducing expense in every feasible way which will not impair, but on the contrary increase, their ability to furnish such service.

The need for better and cheaper passenger service is something that all can see. There is the same need for better and cheaper freight service. The shippers of coal, the shippers of grain, livestock, fruits and vegetables, milk, and other farm produce, and the shippers of many other commodities have plenty of reason to know that this is so. So have the railroads.

Along with this need stands the fact that the railroads are in serious financial straits. They have borrowed 683 million dollars from the government. There are 93 railroads in bankruptcy or receivership, which own 65,272 miles of road, or approximately 26.77 per cent of the mileage of the country. Rehabilitation and modernization will continue to be held back unless this situation can be improved.

Much ground has been covered by the co-ordinator's surveys. The possibilities of improvement which they disclose have a wide

range. Some of the proposals would require widespread and radical changes. Others are simple. Every effort has been made to induce the railroads to move voluntarily in these matters, and along lines of their own choosing. They cannot be blamed for taking time to study many of the projects. But the failure to act goes much beyond any such justification.

The plans for terminal unification are a good illustration. The staff of the co-ordinator estimates that present terminal operations involve a yearly waste of more than fifty million dollars, even with the present low level of traffic. The railroads question this estimate but concede that the waste is large. About 5,000 terminal situations have been surveyed. The waste has been brought to light. Little or nothing has been done about it. Some of the railroads have been willing to act, but others have held back. Collectively, they have thus far failed to act

Terminal unification is a means of eliminating waste which was specifically contemplated when the Emergency Act was passed. Section 4 definitely states that it is a purpose of the Act "to encourage and promote or *require* action on the part of the carriers * * * which will avoid unnecessary duplication of services and facilities of whatsoever nature and permit the joint use of terminals and trackage incident thereto or requisite to such joint use." For the protection of railroad labor in connection with such projects, provisions which the labor representatives drafted were inserted in Section 7 of the Act, and particularly in paragraph (b) of that section.

Effect on Labor

For reasons which have been indicated in a study just released, prepared by his Section of Labor Relations and entitled "Employment Attrition in the Railroad Industry," the co-ordinator regards these provisions as unsatisfactory, in certain respects, not only from the standpoint of the railroads but from that of the employees as well. At the last session of Congress, he recommended a bill which he felt would produce better results for all concerned. This bill, however, received support from neither the managements nor the men, and the Emergency Act was extended for a year without change.

Such orders as are now contemplated will, of course, be subject to the protection which Section 7 and other provisions of the act give to the employees, or to any different protection upon which the parties may be able to agree. Because of this fact, the full economies will not at once be realized. They can, however, be realized gradually, and if railroad traffic continues to grow, full realization may come at a comparatively early date.

It should be remembered that this statute, directed at the elimination of waste in railroad operations, was passed by Congress in 1933 at the very bottom of the depression, when it was inevitable that loss of work would follow from co-ordination projects. Now the tide of traffic is rising, and new work may be added to take the place of some or all of the work lost. And in any event Section 7(b) protects all who were employed in May, 1933.

While the co-ordinator, in proceeding as above outlined, is doing only what is his duty under the definite mandate of the Emergency Railroad Transportation Act, 1933, he is thoroughly persuaded that such action is in the public interest. From now on, the hope for thriving and growing railroads lies in the keen enterprise which can produce more convenient, more frequent, more expeditious, more flexible, more attractive, and more economical passenger and freight service at lower rates and charges. The program of the co-ordinator is designed to stimulate such enterprise and enable it to function under more favorable conditions. The ultimate aim is not to reduce employment but to increase and stabilize it, in the meantime protecting employees against any undue hardships. Obstruction of the program will in the end not help, but harm, railroad labor. The plan is not to consolidate the railroads into huge units or stifle competition, but to enable the competing companies to co-operate to mutual advantage where their interests are common and where they are now working at cross purposes and duplicating their efforts without reason. It proposes to make the movement and circulation of commodities and people as easy and cheap as possible, and thus add to transportation business and revenues. It does not seek to injure any form of transportation, but to get the most that can be got out of railroading. No other means of transportation will be deprived of equal opportunities to give the best and cheapest service possible. There is no intent to produce dividends or interest on inflated securities, but it is the aim to produce earnings sufficient to sustain the financial credit which is essential to progress.

The program proposes to give these opportunities to private enterprise. It does not undertake to promote or advance public ownership. The latter is inevitable only if private enterprise proves unable to do what the public interest requires.

Although Mr. Eastman referred to the plans as having been developed by railroad committees the reports of the committees show that while they had been worked out as feasible in most cases the committees had recommended against action on the ground that most of the savings would be at the expense of labor. As worked out by the various committees the total savings in operating expenses for the 11 terminals would aggregate about $2,000,000 a year and a large part of the saving would result from the elimination of nearly 1000 employees. Some of the principal features of the 11 projects are as follows:

Worcester, Mass.—Reduction of $116,680 in expenses and 21 employees. Co-ordination of entire freight station work of New York, New Haven & Hartford, Boston & Maine, and Boston & Albany. Use of Boston & Albany engine house for all roads. Consolidation of freight houses and co-ordination of passenger train inspection.

Mechanicville, N. Y.—Reduction of $130,140 in expenses and 79 employees. Co-ordination of freight facilities of Boston & Maine and Delaware & Hudson.

Grand Rapids, Mich.—Reduction of $48,679 in expenses. Consolidation of freight station operations of all roads at freight house of either Pennsylvania or Pere Marquette. Consolidation of freight yard and switching operations of Pennsylvania and Pere Marquette in Hubhart yard of Pennsylvania.

Jacksonville, Fla.—Reduction of $113,900 in expenses and 93 employees. Consolidation of yard operations of Florida East Coast and Atlantic Coast Line at A.C.L. yard. Consolidation of mechanical work at the A.C.L. shops.

Montgomery, Ala.—Reduction of $166,584 in expenses and 102 employees. Co-ordination of facilities of Atlantic Coast Line and Louisville & Nashville.

Meridian, Miss.—Reduction of $130,484 in expenses and 70 employees. Use of joint station facilities of Meridian Terminal Company by Gulf, Mobile & Northern. Consolidation of freight station facilities. Joint use of Mobile & Ohio yard facilities.

Freeport, Ill.—Reduction of $33,303 in expenses and 13 employees. Passenger station operations except Chicago, Milwaukee, St. Paul & Pacific to be handled with present facilities of Illinois Central.

Des Moines, Ia.—Reduction of $181,200 in expenses Co-ordination of passenger, engine, and coach yard facilities of Chicago & North Western and Chicago, Burlington & Quincy with those of Des Moines Union in present facilities of latter. Co-ordination of engine, coach yard, and car repair facilities of Minneapolis & St. Louis with those of Chicago, Rock Island & Pacific. Co-ordination of passenger station facilities of Chicago & Northwestern and Des Moines Union. Co-ordination of ticket selling forces of uptown city offices with those at various stations and transfer of soliciting forces to offices above street level. Co-ordination of freight house facilities of Rock Island and Minneapolis & St. Louis. Co-ordination of freight house facilities of Burlington and Chicago Great Western. Co-ordination of yard facilities and operations of Rock Island and Minneapolis & St. Louis. Co-ordination of yard operations of Des

Moines Union, Burlington, Great Western, and Northwestern.

Council Bluffs, Ia.—Reduction of $873,357 in expenses and 364 employees. General co-ordination of facilities of eight railroads in various ways.

Beaumont, Tex.—Reduction of $112,433 in expenses and 21 employees. Unification of freight and passenger station, yard, mechanical and stores department operations of four railroads. Continuance of joint use of Kansas City Southern passenger station by K.C.S. and Missouri Pacific. Conduct of yard operations by one general yardmaster and yard office organization. Use of Texas & New Orleans enginehouse, car department and stores facilities by four roads. Abandonment of mechanical and stores facilities of Gulf, Colorado & Santa Fe.

Ogden, Utah—Reduction of $168,272 in expenses and 83 employees. Consolidation of mechanical facilities at Union Pacific roundhouse. Complete co-ordination of all terminal facilities and operations of all steam roads under general supervision of Ogden Union Railway & Depot Company. Abandonment of D. & R. G. W. freight house.

Mutual Interdependence of Railroads

In an address before the Traffic and Transportation Association of Pittsburgh on February 5 Mr. Eastman said that there were several reasons why the emergency act has not yet accomplished its purpose so far as elimination of waste is concerned. Although the railroad executives place Section 7 (b) in the forefront, he said, "the fact is, however, that Section 7 (b) has never prevented economies from co-ordination projects. All that it does is to defer the full realization of those economies."

"The prime reason for the slow progress to date of the co-ordination policy, as I see the situation, has been either the inability of the railroad executives to agree among themselves, or a general disinclination on their part to act. The inability to agree, especially in the case of such projects as the unification or joint use of terminal facilities, is caused by fear that some other road or roads will get the better of the bargain or that some special advantage in competition will be lost which a road thinks that it now has. The terms of the bargain could, of course, be left to impartial arbitration and the loss of special advantage at one point might well be offset by corresponding gain at another. As a matter of fact, the real importance of these assumed special advantages is small. If the roads would only quit saying No and put some of these projects to actual test, I believe that their fears would soon be dissipated.

"What they do not appreciate, as I think they should, is the extent to which individual welfare will be promoted by action which is for joint benefit or the common good. The fact is that the individual roads are all parts of a national railroad system. Their joint operations are in general of considerably more importance than their local operations. This mutual interdependence has been recognized in the arrangements which have been perfected for the interchange of cars and the publication of joint rates, and in various other ways. All that is needed is to project the selfsame principle still further and permit it to embrace other and like arrangements which can be made to mutual advantage and which will make the national railroad system a more economical and efficient instrument than it now is.

"Let me illustrate. Union passenger stations are common all over the country. Certainly such stations do not curtail competition. The same principle can be extended to many freight terminal facilities without any different result. We are proposing that the railroads establish a central clearing house for the settlement in a better and much more economical way of many intercompany financial transactions. We are proposing that they establish joint agencies for the handling of certain routine fiscal matters in New York City. We are proposing that they establish a central department for scientific research which will serve all railroads alike. These things have nothing to do with competition.

"What is proposed by the policy of co-ordination, in short, is not to break down the individuality of companies or to tie them into huge systems or to destroy competition. All that is proposed is that the companies shall get rid of the abuses and wastes of competition, and too much rugged individualism, and extend the principle which they have already applied to the interchange of cars, joint rates, many passenger stations, and other joint facilities to numerous other situations where it can be applied with equal or even greater mutual advantage and with general public benefit.

"Voluntary action on the part of the carriers is much to be preferred, and I have endeavored to promote or encourage such action in every possible way. These efforts, however, have not met with success, and the time has come to use the authority which the act confers. As a first step, I have selected for proposed orders eleven terminal unification projects scattered throughout the country. They are simple projects; they present no operating difficulties; they cannot impair service; and the plans are those which committees of carrier officers have themselves developed. These projects will, I believe, afford a clearcut test of the policy of co-ordination and of the authority of the government to order it. The first step may have the effect of stimulating voluntary action on the part of the carriers. I hope that it will. Such action is in their own interest, as well as in the public interest, and there is no sound reason why they should not go ahead.

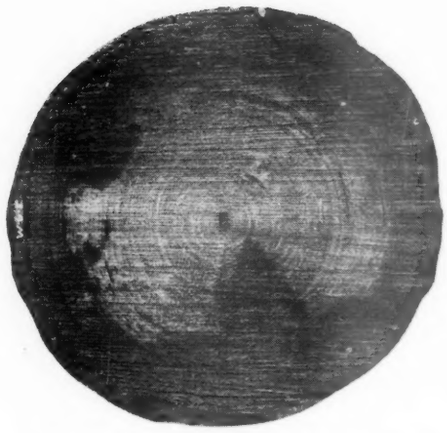
"If I am not greatly mistaken the opportunities which lie ahead, if such a course is pursued, are great. Evidences are in sight. The changes which are being made in passenger equipment, service, and rates stand out. Faster and better freight service and the growing use of trucks and busses as auxiliaries are other signs. The rapid extension of store-door collection and delivery service is a manifestation of the same thing.

Storedoor Service "Without Reformation"

"But let me interrupt the thread of my remarks to say a word about such service, because it illustrates an important point. The less-than-carload traffic of the railroads is as appropriate a place for a policy of cooperation and co-ordination as can be found. This traffic is handled in a most wasteful and uneconomic manner, chiefly because of the way in which it is scattered regardless over a great multitude and diversity of routes, and it is governed by a rate structure which in general is the complicated product of days gone by and unsuited to modern conditions. On the books the less-than-carload traffic does not pay its way. In a reformation of this situation, store-door service would be a desirable part, and a reformation is practicable. Instead, the store-door service is being added without the reformation. The opportunities for important economies and improvements in the handling of the traffic through co-operation and co-ordination have thus far been passed up. To make matters worse, an alternative allowance to shippers, in lieu of the store-door service, is being introduced which will have the effect of increasing the cost of the service where it is furnished, and which will apparently result in preference of particular shippers."

Treating Timber for Railway Uses

Wood preservers discuss requirements of creosote, co-ordination of specifications, and service records



Creosoted Douglas Fir Pile Removed From San Francisco Bay After 29 Years' Service

ALTHOUGH giving less attention to the problems of treating timber for railway uses than is customary, the thirty-second annual convention of the American Wood-Preservers Association at Memphis, Tenn., on January 28-30, developed much information of value to railway officers. In addition to the presentation of service records of crossties, marine piling and posts, an address on termites and two papers on railway uses of treated timber, the association initiated action leading to the co-ordination of its specifications for treatment and devoted considerable time to the consideration of the relative merits of low residue versus high residue creosotes. Frank D. Mattos, manager treating plants, Southern Pacific Company, president of the association, presided over all sessions of the convention.

The following officers were elected for the ensuing year: President, R. S. Manley, president, Texas Creosoting Co., Orange, Tex.; first vice-president, H. R. Duncan, superintendent of timber preservation, C. B. & Q., Galesburg, Ill.; second vice-president, B. M. Winegar, Canada Creosoting Co., Montreal, Que.; treasurer, H. L. Dawson, Washington, D. C. (re-elected); members executive committee, M. F. Jaeger, superintendent treating plant, C. R. R. of N. J.-Reading, Port Reading, N. J., and W. P. Conyers, Jr., vice-president, Taylor-Colquitt Co., Spartanburg, N. C. New Orleans, La., was selected as the location for the next convention.

In his address opening the convention, Mr. Mattos emphasized the necessity for continued research by the association, terming this work the backbone of the organization. Not only must wood preservers protect timber against decay, but they must also be prepared to combat the marine borer and the termite. More recently, they are also facing the necessity of making wood more resistant to fire. Mr. Mattos also criticized those who make extravagant claims for new preservatives, based frequently on superficial tests rather than true service records. "We must," he said, "guard against creating the impression that wood preservation is a hit-or-miss proposition but must constantly show that it is an exact science, with results definitely known in advance."

Service Records

The compilation and presentation of service records of treated timber in various uses has long been a constructive activity of this organization. These Records were presented by several committees.

The Committee on Tie Service Records, of which A. J. Loom, general superintendent of timber preservation and tie-treating plants of the Northern Pacific was chairman, presented its annual tabulation of tie renewals on 27 roads, showing the average renewals per mile for 1934 and the five-year average for the years 1930 to 1934, inclusive, as well as the corresponding figure for the combined mileage of these 27 roads. These figures were as follows:

Railway	Average Renewals Per Mile 1934	Average Five-Year Period Ending 1934
A, T. & S. F.	96	104
B. & M.	108	131
B. & O.	81	73
C. of N. J.	33	63
C. & O.	96	115
C. & E. I.	98	98
C. B. & Q.	91	109
C. I. & L.	84	100
C. C. C. & St. L.	86	75
C. M. St. P. & P.	182	187
C. R. I. & P.	60	76
D. L. & W.	88	68
G. N.	110	130
I. C.	134	134
K. C. S.	109	137
L. V.	66	59
M. C.	75	62
M. St. P. & S. S. M.	158	177
M-K-T	127	120
N. Y. C. (East)	70	77
N. Y. C. (West)	65	54
N. P.	82	101
Penna.	55	69
Reading	31	59
S. P. (Atlantic System)	112	115
S. P. (Pacific System)	80	107
U. P.	125	105
All 27 roads	95	104

In addition to the foregoing record of tie renewals,

tabular summaries of data obtained from the annual inspection of test tie installations were presented for the Burlington, the Milwaukee, the Baltimore & Ohio, the Northern Pacific and the Santa Fe.

The report of the Committee on Marine Piling Service Records, of which M. F. Jaeger, superintendent of the Port Reading creosoting plant of the Reading-Jersey Central, is chairman, included the results of the inspection of one new structure, a coal wharf, operated by the Pocahontas Fuel Company at Portland, Me. The work of the committee was given over largely to determining the resistance of treated piles to marine borers, principally teredo and limnoria. For this reason, the remainder of the report consisted of a description of the condition of 13 structures operated by the Southern Pacific on San Francisco Bay. These structures have been inspected annually for a number of years.

A report of considerable interest to railway officers was presented by the Committee on Post Service Records, of which J. M. Harmon, treating engineer, Mississippi state highway department, was chairman. This report gave detailed information concerning 318 test installation of posts, a large number of which are installed in right-of-way fences. The report covers a wide range of species of wood treated with a wide variety of preservatives and retentions and erected under many different conditions of soil and climate. For purposes of comparison, several of the installations were made of steel and of concrete posts.

A report by the Committee on Pole Service Records, of which H. A. Haenseler, engineering department, Western Union Telegraph Company, was chairman, included detailed data on the performance of treated poles in 17 extensive installations. For example, the Gulf, Colorado & Santa Fe installed a line of 857 creosoted pine poles between Somerville, Tex., and Temple, in 1921. This line carries both telegraph and signal wires and was erected in soil consisting principally of sand and loam. The inspection in 1935, after 14 years service, indicated that the poles are all in service and do not show any signs of decay.

Treating Ties

Facing the fact that the various specifications for the treatment of timber that had been adopted from time to time differed in terminology and in some respects in essential practices, a committee was appointed a year ago to co-ordinate and harmonize these specifications. This committee, of which R. S. Belcher, manager treating plants, A. T. & S. F., was chairman, submitted in tentative form a master specification as a guide to other committees in revising detailed specifications.

In accordance with this master specification, a committee on Ties-Pressure Processes, headed by W. E. Jackson, superintendent Santa Fe treating plant, Somerville, Tex., presented a revised specification for the preservative treatment of ties by pressure process. In part, the revision consisted of a complete rearrangement of the existing specification; in part, of new requirements for pressure and temperature during the treating operation. The committee included a requirement that during the pressure period the pressure shall not be more than 200 lb. per sq. in. for all treating processes, in place of the present requirement for a minimum pressure of 100 lb. With respect to temperature, a limit of 210 deg. F. is set as the maximum and an average of 180 deg. is required, although no minimum temperature is specified. For mixtures, the same limit is specified as the maximum, but the average is reduced to 150 deg. with no minimum limit. For the Card process, the limit is set at 210 deg. and the average at 180 deg., with no minimum. For the straight salt solution, the specification provides that "the ranges of pressure, temperature and time duration shall be controlled so as to get the maximum penetration by the quantity of preservative solution injected." A new section provides for retention of preservatives and penetration and provides methods for determining these factors.

A corresponding committee, of which H. G. McIlhinney, Kettle River Company, was chairman, presented for tentative adoption, revised specifications for the treatment of timber and lumber by pressure processes.

In a paper entitled Creosote Treatment of Jack Pine, J. F. Harkom, chief, Division of Wood Preservation, Forest Products Laboratories of Canada, described a series of experiments to determine whether a treating schedule can be developed for jack pine that will provide better penetration of a 70-30 creosote-coal tar mixture than the Rueping process at present in use. In this experiment, the ties were incised and bored and then sawed into 12 sections per tie. Holes were bored in the sections from the center of the ties to correspond with the holes in the end section.

The ties were subjected to an initial air pressure of 60 lb. for 30 min. and to an oil pressure of 180 lb. for periods ranging from 22 min. to 3 hr. 40 min. at a temperature of 190 lb., except for two charges in which the temperature was 150 lb. A number of the charges were subjected to an expansion bath at a temperature of 220 deg. for a period of 1 hr. 30 min., after which the final vacuum was applied for 1 hr.

It was concluded that the results indicate that penetration in pressure-creosoted jack pine can be improved by the use of a final expansion bath and that the expansion bath can be made more effective by lowering the cylinder temperature during the pressure period.

High Residue Creosote

Because of the dissatisfaction with the present specifications for creosote, as expressed by their abandonment by a number of leading railways, active interest was taken in a discussion of the relative merits of high-residue versus low-residue oils. This discussion was precipitated by the presentation of a paper by Walter H. Snell, associate professor of botany, Brown University, and L. B. Shipley, chemist, Bernuth, Lembcke Company, Inc., in which they gave results obtained from accelerated laboratory evaporation tests and other tests to determine the initial toxicity, the permanence of toxicity and the permanence of a number of different types of creosotes and of mixtures of creosote with known amounts of coal tar and of petroleum. Through the

methods used, the condition favorable to large losses from evaporation were exaggerated deliberately. Within the short period of a few weeks, losses were obtained which are obtained under actual service conditions only after many years.

This investigation was undertaken because of the revival of interest in tests on permanence with different creosotes conforming to the present specifications for Grade 1 creosote. It is admitted generally that such creosotes possess appreciably lower initial toximetric values than the low residue creosote heretofore generally used. The claim has been advanced, however, that this objection is offset largely, if not entirely, by the greater permanence of the high residue creosote.

After a voluminous discussion of the methods followed, the materials used and the results obtained, the authors concluded that these results indicate that materials of the higher initial toxicities continued to possess these characteristics as the periods of exposure progressed, and that the relative advantages of the higher initial toxicity persists and, in most cases are somewhat increased.

According to the results obtained from the investigation, as the periods of exposure are increased the stage is reached where the low-residue creosotes continue to possess a permanence of toxicity which indicates a quite reasonable degree of safety for wood preserving purposes, while at the same stage of exposure the toxicity of the high residue creosotes might be seriously questioned. The actual losses from the creosote itself, as a result of weathering, are not reduced to any appreciable degree by the addition of petroleum or coal tar. When petroleum is added to creosote, the toxicity of the mixture decreases more than that due purely to dilution by the non-toxic oil. The same is true for the creosote-coal tar mixtures.

The authors concluded also that the addition of petroleum to creosote does not serve to retard the normal evaporation losses from the creosote, although the percentage loss from the creosote-petroleum mixture is usually somewhat less than the percentage loss from the straight creosote. The toximetric results with all of the materials under test indicate very definitely that the total toxicity of creosote is restricted to the fraction which can be distilled between zero and 355 deg. C.

In opening the discussion of this paper, Ernest Bateman, senior chemist, Forest Products Laboratory, criticized some of the methods followed and some of the terms employed, but showed that the results agreed in a general way with other similar investigations, none of which, including the present investigation, are complete because the factors necessary to convert experimental results to service conditions are unknown. E. O. Rhodes, technical director, American Tar Products Co., Henry Schmitz, professor of forestry, University of Minnesota, and F. E. Cislak, chemist, Republic Creosoting Co., also challenged the conclusions of this paper and defended the high residue creosotes.

Petroleum for Mixtures

Recognition of the demand from users, particularly the railways, for further modification of standards for preservatives was evidenced also by the inclusion in the report of the Committee on Preservatives, of which R. E. Waterman, chemist, Bell Telephone Laboratories, was chairman, of a paper on the Compatibility of Creosote and Petroleum by E. W. Carlson and W. C. Winning of the Esso Laboratories, discussing the sludging characteristics of petroleums when mixed with creosotes for wood preserving purposes. As a result of an extensive investigation of this subject, the authors concluded that "the specific gravity of petroleums appears to be a convenient criterion for judging their compatibility with creosote and it is suggested that a value of 0.96 minimum be used." Normally, the amount of sludge formed in a creosote-petroleum mixture is the primary measure of the compatibility of the components of the mixture. The authors stated that at present there is no lack of oils of such specific gravity as was recommended, and that with the cracking of oils on the increase and new solvents and chemical processes coming into use which also produce heavy by-product oils, there need be no fear of a shortage of heavy petroleum for wood preserving purposes.

Poles

Among the papers of interest to railway officers was one by P. B. Stewart of the Union Gas & Electric Company, describing an extensive investigation of the electrical resistance of wood poles. This investigation showed that it is possible to produce pressure treated pine poles with electrical resistance as high as untreated cedar poles, provided they are seasoned properly before treatment. It was also shown that for it to be safe for linemen to handle a 5,000-volt line, the electrical resistance of the pole should be not less than 500,000 ohms.

The Committee on Poles-Pressure Treatments, of which R. H. Colley, engineer, Bell Telephone Laboratories, Inc., is chairman, presented an extensive report on a series of investigations of treated poles which had been in service for varying periods. It then presented data and recommendations as to the proper penetration of the preservative, giving suggestions as to proper methods of securing adequate penetration. An explanation was given with respect to certain engineering requirements of the existing specifications for the pressure treatment of southern pine poles, as compared with the proposed revision of these specifications, which was submitted for adoption as a tentative standard.

Clean Treatments

Because of the interest in "clean treatments" among railway and other users, W. P. Arnold, engineer, Wood Preserving Corporation, Orrville, Ohio, and E. R. Boller, Grasselli Chemical Co., Cleveland, Ohio, presented a paper setting forth the possibilities in this direction. They defined a clean treatment of wood as one which does not alter appreciably the appearance and other surface characteristics of the original material. In most cases, clean treatment implies a product which differs little from untreated wood with respect to color, odor, general cleanliness and paintability. Usually, the requisites of such treatment are met by use of preservative salts in aqueous solutions. Treatments with solutions of toxic materials in colorless oils may also satisfy these requirements, although at present they are of minor commercial importance. Dry creosote treatments conform to some of these conditions, although they cannot be regarded as genuinely clean.

In this paper salt treatments and special creosote treatments were discussed. There is no one salt which is unanimously accepted as standard, and consideration of salt treatments must include a comparison of the worth of various materials of this class as wood preservatives. The matter of cleanliness is more or less inherent in this class of treatments. In the case of the dry creosote treatments, the problem is largely one of treating operations.

The authors summarized their conclusions as follows:

1. With any clean treatment, the choice of preservative, method of treatment and condition of timber should

be governed by the requirements of the specific application.

2. In the treatment of timber with aqueous salt solutions, the wood should be kiln dried or air seasoned after treatment. The moisture content should be reduced to a value corresponding to conditions under which it will be used.

3. Methods have been outlined for determining relative values of wood preservatives.

Treated Timber On Central of Georgia

Among the papers presented on Users Day was one prepared by H. F. Sharpley, assistant chief engineer, Central of Georgia, and read in his absence by L. H. Harper, superintendent of that road's creosoting plant at Macon, Ga. In this paper, Mr. Sharpley related the experience of his road with the use of treated materials in part as follows:

Since the Central of Georgia runs through the rich timber belts of Georgia and Alabama, for many years an abundant supply of long-leaf pine, white oak and red cypress timber was obtainable at low cost, making them economically suitable for crossties and bridge timbers without treatment. However, by the early part of the present century, much of the best timber had been cut out, and a relative scarcity began to develop in the better grades, and along with it an increase in the cost. With about 7,000,000 crossties in its tracks and many miles of open-deck trestles, the Central of Georgia began to feel this changed condition, and was quick to realize the necessity for taking steps to combat it.

For this reason, the company built a modern pressure-treating plant at Macon, Ga., in the center of its territory, with two retorts 7 ft. inside diameter by 116 ft. long. The plant was completed in 1912, since which time more than 10,000,000 crossties have been treated, as well as 33,000,000 bd. ft. of switch ties, 76,000,000 bd. ft. of bridge and miscellaneous lumber, and almost 2,000,000 lin. ft. of piling.

It has been the practice to treat all piling and all ballast-deck trestle lumber to refusal by the full-cell process with the best grade of creosote obtainable. The same treatment is now given to lumber for water tanks and their substructures and to timbers for overhead highway bridges. In the beginning, caps, stringers and braces for open-deck trestles were also treated by the full-cell process, but now all open-deck trestle lumber (except ties and guard rails, which will be mentioned later) and all platform and miscellaneous lumber are given a 5-lb. Rueping treatment with Grade 1 creosote.

For a long time, all crossties, except those treated with zinc chloride, were given a Rueping treatment with a final retention of 5 lb. of straight creosote to the cubic foot of timber. In 1929, it was decided to use a 70-30 creosote coal tar solution, with a retention of 7 lb. per cu. ft. This has since been increased to an 80-20 solution with the same retention per cubic foot. Switch ties, bridge ties and guard rails are given the same treatment as crossties.

Formerly, all crossties were seasoned on the right of way and shipped to the plant, supposedly ready for treatment. However, many of the ties were produced in low, swampy sections where seasoning conditions were unfavorable. Then, too, being loaded to the plant in quantity by work train, ties of varying ages were sometimes loaded together, with the result that some received better treatment than others in the same charge. To eliminate these unfavorable conditions, in 1929, it was decided to bring all ties to the treating plant for seasoning. Immediately upon being accepted, all ties are now shipped to the plant where they are unloaded and stacked in ventilated piles on ramps made of old steel rails set on creosoted blocks to insure free circulation of air from underneath, a space of four feet being maintained between adjacent stacks. Each stack is dated, making it easy to load ties of the same age and condition of seasoning into one charge, with the result that they get a more uniform treatment than was formerly possible.

The desirability of adzing and boring crossties had long been recognized, and in 1930 a modern tie-adzing and boring machine was installed, since which time all crossties have been adzed and bored prior to treatment.

Some of the early failures of bridge timbers were due to framing the treated timber in the field, and not adequately protecting the exposed surfaces. For some years, as much framing and boring as is practical had been done at the plant in advance of treatment. All timbers for water-tank frames and for trusses of overhead highway bridges are completely framed and bored before treatment. This, with better care of the materials in the field, is already being reflected in increased service life of the structures.

For various reasons, the service records for creosoted materials are not as complete as might be desired. However, such records as have been kept are valuable as an index of what may be expected from the various treatments. For instance, records were kept of six open-deck pile trestles, ranging in length from 62 to 1,164 ft., which were built in 1913. All piling and lumber, except ties and guard rails, were treated by the full-cell process with approximately 17½ lb. of Grade 1 creosote per cubic foot of timber. In 1932, it was found that the various members had lost the following percentages of timber by failure:

Member	Per cent
Piling	8.0
Caps	16.4
Stringers	0.5
Braces	..

From these data it is safe to predict an average life of 25 years for all of the treated members except the caps. The ties and guard rails were of untreated cypress. The large percentage of failure in the caps was due to excessive checking of the timbers, allowing water to get in and cause decay.

In 1921, an experiment was made with crossties on a section of dirt-ballasted track, with light traffic and slow speeds, where the element of decay would be the governing factor in tie failures. Nine different sections of 200 ties each were laid, with ties having retentions varying from 3.63 lb. to 10.68 lb. of creosote to the cubic foot of timber. In 1935, after 14 years, the percentages of renewals ranged from 57 in the case of one of the light treatments down to no renewals for the ties with the retention of 10.68 lb. As a general rule, in this experimental lot, the percentage of renewals corresponds inversely with the amount of oil in the treatment.

For the three years preceding 1913 (when the first treated ties were used), the renewals of untreated ties averaged 898,000 per year. From 1925 to 1930, the annual renewals averaged only 443,000, a reduction of more than 50 per cent. The present figure is 300,000, with the probability that future normal requirements will not exceed 350,000 per year. This is based on an average service life of 20 years, which, considering the adzing and boring of ties, the 7-lb. treatment with 80-20 creosote-coal tar solution, and the use of larger tie plates, is not an unreasonable expectation.

Other Papers

Another paper dealing with railway applications of treated timber was presented by O. T. Dunn, construc-

tion engineer of the Illinois Central. This paper described the structures which the Illinois Central built to carry its double-track main line and its single-track Yazoo & Mississippi Valley main line across the Bonnet Carre spillway a short distance above New Orleans, La. These structures, 11,735 ft. long and 8,000 ft. long, respectively, were built of creosoted pile and deck construction, requiring more than one million lineal feet of piling and other timber in proportion.

In a paper presenting a long range view of lumber and crosstie production, Nelson C. Brown, professor of forestry, New York State College of Forestry, traced the relationship between railway earnings and tie purchases, leading to the conclusion that, as earnings increase, the railways will come into the market for increasing quantities of ties.

As in recent years, termites received prominent attention at this convention, especially in an address by Dr. T. E. Snyder, senior entomologist, U. S. Department of Agriculture, who described the latest results in research on termites. After stating that termites have now been found in every state in the union, he dwelt on the importance of building structures to prevent their entrance and described the ways in which this can be done.

The Committee on Diversified Uses for Treated Wood, of which E. P. Gowing, American Creosoting Co., was chairman, presented a report suggesting additional applications for treated timber including dunnage for ore pockets and oil field construction.

I.C.C. Reports on Cause of Santa Fe Diesel Locomotive Fire

THE Atchison, Topeka & Santa Fe received a 3,600-hp. Diesel-electric locomotive in October, 1935, a description of which was printed in the *Railway Age*, November 11, 1935. This locomotive was made up of two identical sections, each of which contained two power units of 900 hp. and was provided with an operating cab at each end, control being of the multiple-unit type.

On November 20, during a westbound test run from Chicago to Los Angeles with a special train of eight regular passenger cars, a fire broke out in the engine compartment of the forward unit. A few minutes before the accident the train had made a stop, of about two minutes at Gallup, N. M., one of the crew-changing points, at which time the forward engine in the front unit was cut out on account of a scored cylinder. The train had proceeded about seven miles and had reached a speed estimated to be 75 m.p.h. on a 0.5 per cent descending grade when the fire was discovered. In bringing the train to an emergency stop 20 pairs of wheels on the cars were slid flat. An inspection of the rails indicated that the wheels had been sliding for about three-quarters of a mile. As soon as possible after stopping, the first unit of the locomotive was uncoupled from the second unit, and the train backed away from the burning unit. The Gallup fire department was summoned but it was unable to extinguish the fire due to lack of sufficient chemicals. A steam locomotive was then placed on an adjacent track and the fire was extinguished by the discharge from a blowoff cock. At the time of the fire five men were riding in the forward cab and two in the rear cab of the first engine unit. Two men were burned but neither one seriously. The fire which was intense while it lasted did considerable damage to machinery and equipment.

The forward engine unit was held at Gallup for four days for a preliminary examination, but no parts were removed or dis-assembled. The superstructure was then sealed and this unit hauled by the second engine unit to the shop of the Electro-Motive Corp. at LaGrange, Ill., where a joint detailed examination was made by representatives of the A. T. & S. F., the engine builder and the I. C. C. Bureau of Locomotive Inspection.

The formal report of the I. C. C. Bureau of Locomotive Inspection, which has just been issued, contains a description of the locomotive, an account of the accident, the examination after the accident and the final examination together wtih matters developed by the investigation and closes with a brief summary. It is from this report that the facts given herewith are taken.

The following brief description of the locomotive and its equipment is necessary for an understanding of what occurred. Each unit, with operating cabs at each end, contains a central engine room separated from the cabs by bulkheads, each having two-swinging doors. There are two 990-hp. Diesel engines coupled to generators. There is also near the center an oil-fired heating boiler and an auxiliary 90-hp. Diesel engine which is directly connected to a generator for charging the storage batteries and belt-connected to an air-compressor. Two belt-driven fans draw air from the outside at the front over the cab into the engine room. A motor-driven blower fan delivers air to the traction motors which drive the axles.

In the roof over the engine room, is a long trough containing the cooling-water radiators, the engine exhaust manifolds, with mufflers, and the stack from the heating boiler. There is a long open slot in the center of the roof over this trough or exhaust-manifold well. Cool air blown into the engine room passes through the radiators and around the exhaust manifolds and escapes through this opening in the roof over the exhaust manifold well.

The fuel oil is carried in two 400-gal. tanks connected to a common sump and mounted underneath the locomotive unit bed. Filling holes for these tanks are provided in the outer walls to permit filling from the outside. Filling holes are equipped with safety plugs designed to prevent flame from entering the tank and to relieve any pressure therein. Each fuel tank has one 1-in. and one 2-in. vent pipe. The 1-in. pipes extend through the bottom of the engine exhaust manifold well and terminate in return bends just below the level of the roof. The 2-in. vent pipes extend to approximately the same height and terminate in return bends near the vertical wall of the exhaust well. Any discharge from the 2-in. vent pipes would pass downward through the cooling radiator pipes and into the engine room.

At the time of the accident wayside filling stations had not been established. To overcome this condition, each engine unit was temporarily equipped with a rotary refueling pump driven by a chain from the end of the shaft of the air-compressor previously referred to. A jaw clutch, mounted close to the compressor and moved in or out by means of a lever, permitted the refueling pump to be operated when desired. A pin, passing through the lever, was furnished to assure that the clutch was held disengaged when the pump was not being operated. The inlet pipe to the pump was provided with a gate valve and a hose connection so that a hose could be passed through a window and coupled to a tank car or wayside tank and oil pumped into the fuel tanks on the locomotive. An additional supply of fuel oil was carried in two tanks in a baggage car of the train which

were connected to a steel armored hose which extended through the two locomotive units and was connected to the refueling pump in each unit.

The tanks in the baggage car were refilled at Albuquerque, 160 miles east of Gallup, and then contained 3,385 gal. of oil. Refueling of the rear engine unit was completed shortly before reaching Gallup and the tanks on the front unit would then have been refilled had not the operation been delayed by the stop at Gallup. Upon leaving the station the fireman and the attendant whose duty it was to operate the refueling pumps were called upon to transfer lubricating oil from the rear to the front engine unit. While this work was being performed the fire occurred.

The examination after the fire had been extinguished disclosed the fact that the pin which should have been in the lever operating the clutch driving the refueling pump on the front engine unit was missing and the clutch was partly engaged. The gate valve to the pump which should have been closed was more than half open. This permitted the pump to operate and after the fuel tanks had been filled, the surplus escaped through the vent pipes, part of it dropping onto the engine room floor and part of it being broken up into a fine spray by the blast from the rear ventilating fan which made a highly combustible mixture.

An examination of the track showed that oil had been escaping for about four miles, indicating that the refueling pump must have gone into operation soon after the train left Gallup. The wastage was about 350 gallons.

The report closed with the following conclusion:

The direct cause of the accident was improperly located outlets to the vent pipes which discharged the overflow from the fuel oil tanks into the engine room.

The oil tanks were overflowed, in the absence of an attendant, by oil from a hose line extending from tanks in a baggage car to a refueling pump in the engine room of the unit. Manually operated stop valves in the hose line, at the tanks in the baggage car and at the refueling pump inlet, were found in open position. The jaws of the clutch mounted on one end of the air compressor shaft that drove the refueling pump, which was used for transferring oil through the hose line to the fuel tanks of the unit, were found engaged and the pin provided to hold the clutch handle in off position was not in place. The cause or causes, for engagement of the clutch, and the manually operated stop valve at the inlet of the refueling pump being opened, could not be determined. The stop valve at the tanks in the baggage car had been left open by the attendant after completion of refueling of Unit 1-B, as he had anticipated refueling Unit 1-A immediately thereafter, but this operation was interfered with by the stop the train made at Gallup and by being called upon to perform other work when leaving Gallup.

The presence of this refueling arrangement on the unit was a violation of Rule 256 of the Rules and Instructions for Inspection and Testing of Locomotives Other Than Steam, which reads: "Fuel reservoirs shall be arranged so they can be filled only from outside of the cab or other compartments."

The fuel oil that was discharged into the engine room from the vicinity of the roof was mixed with air by a strong blast from the cooling and ventilating fans driven from the rear main engine and formed a readily combustible mixture. The exact cause of ignition was not determined, but a number of theories were advanced as to the possible causes, among which are the following: Mixture being blown against the hot exhaust stack of the auxiliary engine, the smokestack of the heating boiler, the hot casting on top of the heating boiler, or drawn through the slotted openings into the boiler fans and thence blown against the red hot cover of the combustion chamber of the heating boiler. Sparking at commutators of heating-boiler motors or auxiliary generator. Sparking at storage-battery connections, temporary connection having been made across three front cells by clips and loose wiring which were found on top of the batteries after the fire. Sparks from the brake shoes at the time the running test of the brakes was made leaving Gallup.

While there was normally considerable oil scattered on the trucks, piping, and fuel tanks, those who participated in the investigation were generally of the opinion that the source of the fire was within the engine room, rather than external.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended January 25 totaled 584,691 cars, a decrease of 26,717 cars as compared with the week before but an increase of 29,163 cars, or 5.2 per cent, as compared with the corresponding week of last year. Coal and coke were the only commodity classifications to show increases as compared with the previous week but all except merchandise, coal, and live stock showed increases as compared with last year. The summary, as compiled by the Car Service Division of the Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, January 25, 1936

Districts	1936	1935	1934
Eastern	133,101	132,676	128,727
Allegheny	106,375	109,594	107,476
Pocahontas	44,366	41,942	41,117
Southern	92,766	81,981	88,148
Northwestern	66,373	62,633	64,807
Central Western	89,775	82,067	84,633
Southwestern	51,935	44,635	48,192
Total Western Districts	208,083	189,335	197,632
Total All Roads	584,691	555,528	563,100
Commodities			
Grain and Grain Products	29,140	23,598	31,706
Live Stock	12,534	13,799	18,521
Coal	147,550	153,456	125,748
Coke	9,672	8,818	7,698
Forest Products	28,306	17,929	20,687
Ore	5,282	3,443	3,192
Merchandise L.C.L.	144,181	146,312	161,887
Miscellaneous	208,026	188,173	193,661
January 25	584,691	555,528	563,100
January 18	611,408	562,826	561,902
January 11	615,028	553,518	557,266
January 4	541,984	497,274	500,813
December 28		466,679	425,404
Cumulative Total, 4 Weeks	2,353,111	2,169,146	2,183,081

Car Loading in Canada

Car loadings in Canada for the week ended January 25 decreased to 39,006 cars from 40,082 cars for the previous week and 42,407 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
January 25, 1936	39,006	21,036
January 18, 1936	40,082	21,785
January 11, 1936	40,221	22,305
January 26, 1935	42,407	21,299
Cumulative Totals for Canada:		
January 25, 1936	153,767	85,370
January 26, 1935	157,903	81,847
January 27, 1934	156,697	81,418

A Lateral-Motion Roller-Bearing Journal Box

WITH the application of roller bearings to locomotive driving axles the Franklin Railway Supply Company, New York, one of the first to provide controlled lateral for locomotive driving axles, became interested in developing a means of applying this principle to roller-bearing journal boxes.

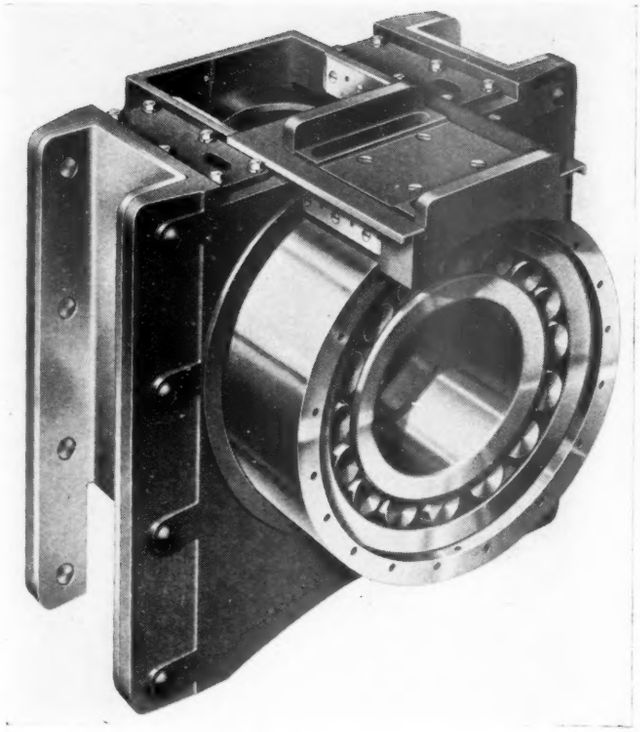
On locomotives with plain crown-bearing journal boxes the control and cushioning of lateral motion has been largely confined to one or two axles for the primary purpose of keeping the rigid wheel base within practical limits on locomotives with long coupled wheel bases. In the case of the roller-bearing journal box, however, because of the absence of lateral motion within the bearing itself there is to be considered the added function of providing some cushioned lateral movement within the parts of the journal box to protect the axle bearing, frames and parts from shocks received through the track. To meet these conditions this company has developed a type of lateral-motion journal box which is adapted to either self aligning or radial type roller bearings and is applicable on either inside or outside journal bearings, the latter including those on trailer, tender and passenger-car trucks.

For both types of bearings the complete lateral motion journal box consists essentially of an inside box which houses the roller bearing and an outside box which fits into the pedestal of the locomotive or truck frame or is otherwise attached to the truck frame. The inside box conforms to the outside of the roller-bearing assembly and is essentially cylindrical in form. Within it are provided the necessary seals for retaining the roller-bearing lubricant. On the top of the inside box is doweled the spring seat or the spring-saddle seat, as the case may be. The outside box is open on the side next to the wheel hub and, in assembling, is slid onto the inner box in a direction parallel to the axis of the journal. The top of the outer box is also open for the doweled seat of the inner box on which the load is carried.

Lubrication of the sliding surfaces between the inner box and the driving box is provided from an oil pocket in the spring-saddle seat. Pockets in the top of the outer, or driving box, feed oil to the pedestal shoe and wedge faces. In the trailer box the oil pockets in the outer box supply lubricant to both surfaces. Alemite fittings in the inner box extend through free openings in the closed end of the outer box.

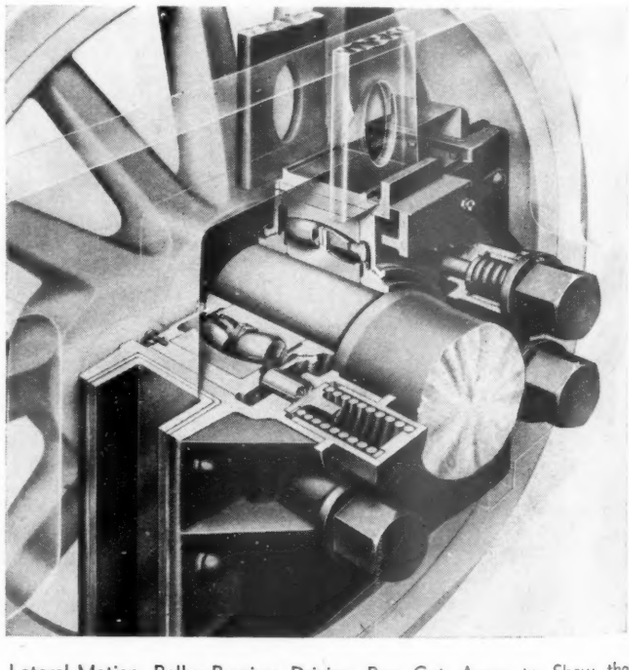
On the closed face of the outer box are a number of spring pockets which are parallel to the axle. Within each pocket is a coil spring which bears against a plunger projecting into the outer box toward the end surface of the inner box from which it is normally separated by a clearance of $\frac{1}{64}$ in. The lateral movement of the axle and the roller-bearing assembly with its inner box brings the latter into contact with the ends of the plungers in the outer box and builds up resistance against the movement by the compression of the springs. With the removal of the force causing the lateral movement of the axle the springs acting on the plungers restore the inner box to its normal or central position within the outer box.

The illustrations show a driving box designed for SKF self-aligning bearings. With this type of bearing the movement required to accommodate the variable inclinations of the axle with respect to the frames takes place within the bearing itself, and full-length bearing surfaces between the flanges of the outer or driving box and the pedestal shoe and wedge surfaces can be maintained. The only friction load on the sliding surfaces between the inner and outer boxes is what may be imposed by braking reactions and, in the case of driving boxes, by the piston thrust. The main bearing load is carried directly on the inner box.



The Inner Box, with Its Inside Cover Removed, Partially Inserted in the Outer Box—When Completely Assembled All Bearing Surfaces Are Protected from Dust

With a journal box of this kind it is possible to provide the amount of lateral cushioning force desirable on any particular axle, depending upon its location in the wheel base. By the number of cushioning springs built into the box and the initial load adjustment the amount



Lateral-Motion Roller-Bearing Driving Box Cut Away to Show the Relation Between the Parts

of resistance can readily be developed to supplement the resistance of the leading truck or the trailing truck in any proportion to provide proper riding quality both at speeds and on curves. In the case of the drivers it can also be varied to meet the conditions of location and, hence, to provide the proper flexibility in order to negotiate curves and overcome the disadvantages of a too long rigid wheel base. The cushioning of the lateral not only tends to increase the life of the mechanism, including flanges, wheels, axles, bearings and boxes, but also reduces stresses on the rail and roadbed. By reducing flange clearance it would be possible with journal boxes of this type to replace what is in reality a free lateral movement between the flange and the rail with a cushioned and controlled lateral movement within the lateral-motion journal box.

Journal boxes of this type have been in service on the front driving boxes and the front trailer boxes of two Delaware, Lackawanna & Western 4-8-4 type locomotives since December, 1934, one of these locomotives operating largely in passenger service and the other largely in freight service. In this installation the maximum lateral permitted within the driving boxes is 5/8 in. and within the trailer boxes, 1 in. Observations made by the use of Bowden wires attached to one plunger each in a driving box and a trailer box indicate that in approaching a curve the lateral-motion boxes permit the axle to adjust itself smoothly and gradually and no side sway of the locomotive was evident either on tangent track or on curves due to a jerky lateral movement of the axles. When operating in the yard and in pusher service the lateral movement within the driving boxes varied up to a maximum of 1/4 to 3/8 in., both in forward and backward motion. In backward motion the springs in the trailer box were compressed 5/8 in. under conditions of severe curvature, and in forward motion not more than 3/8 in. Examination of the boxes, however, indicates that at times there have been lateral movements up to the maximum permitted by the design of the boxes. In road passenger service a reduction in the initial lateral force on the trailer boxes from 31.6 per cent to approximately 21 per cent of the wheel load was found to effect a smoother operation of the trailer. The initial force in the driving box has been maintained at 31.6 per cent of the wheel load.

New Book . . .

The Lords of Creation, by Frederick Lewis Allen. 483 pages, 8½ in. by 5½ in. Illustrated. Bound in cloth. Published by Harper & Brothers, New York. Price $3.

With the same fascinating style that made his "Only Yesterday" a best seller of a few years ago, Mr. Allen presents in this book a history of the evolution of financial power in the United States since 1900. While it is thus not predominantly a railroad book there is nevertheless much about railroads in it, for some of the most dramatic financial developments since the turn of the century have been events of railroad finance. And Mr. Allen has skillfully woven these into his lively narrative—the struggles of Harriman and Hill; the Northern Securities Company; the extension of banker influence over the carriers; the activities of the Van Sweringens; the mania for mergers and for the use in the transportation field—as well as in others—of the holding-company device.

All of which, though interwoven throughout, forms but a small part of this fast-moving account of economic developments which the author believes led inevitably to the crash of 1929 and the lean years of the 'Thirties.

Odds and Ends . . .

An All-Time Record

F. N. Bard, president of the Barco Manufacturing Company, calls our attention to the fact that during the Christmas holidays the New York Central operated 52 trains into Grand Central terminal in a space of 60 min. Mr. Bard would like to know if this is not a record of some sort, and we are inclined to believe that it is.

Growing Mushrooms in Ex-Railroad Tunnels

Two railroad tunnels, one nearly 2,000 ft. long and the other over 3,800 ft. long, near the town of Ahrweiler, Germany, are to be converted into cellars for the cultivation of mushrooms. Two other railroad tunnels in the neighborhood are also under consideration for a similar purpose. An incorporated company is to be formed to develop this business.

Swimmer

R. L. Conrad, clerk in the trainmaster's office of the Illinois Central at Council Bluffs, Iowa, weighs only 113 lb., but he has never lost a swimming race of over a mile, and he has competed in several hundred of them. In addition, he is the possessor of several life-saving medals. His son, Bernard, although only 14, has already won several adult championships.

Railroading Saint

An Italian railroader is to become a saint. Formal proceedings have been instituted for the canonization of Paul Pius Porazzo, for 30 years employed by the Italian State Railways. His saintly life and his bravery in the wars for Italian independence earned him the veneration of his fellow workers, over whom his pious example exercised deep influence.

Metropolitan Mayor

There have been and are many railway mayors, but Matthew H. Goetz, of the auditor of freight accounts' office of the Louisville & Nashville, claims to have been mayor of a larger city than any other railroader. As president *pro tem* of the board of aldermen, Mr. Goetz was official mayor of Louisville, Ky., for one day, during the absence of both the mayor and the president of the board of aldermen.

Highway Competition

The Burlington's speed train, the Zephyr, was late recently, because a motorist used the railroad bridge over the Mississippi river near Minneapolis, Minn., as an automobile highway. As the train came onto the bridge a short distance from the station, the engineman suddenly saw an automobile bumping along uncertainly over the ties. Screeching brakes stopped the train just short of the car, which also had halted, its driver apparently weary of his hazardous task. A city police officer drove the car the rest of the way across, and then lodged Joseph Stoderl, in jail, where he was held without charge. Stoderl told officers he didn't remember driving onto the bridge.

As You Travel

In the Grand Central and the Pennsylvania stations in New York; the Atlantic Avenue station, Brooklyn; the Pennsylvania stations in Philadelphia and Harrisburg; the Union stations in Washington and Cleveland, and the Canadian National Dock in Seattle, "Book Boxes" are conveniently located, where passengers may leave discarded traveling companions—books and magazines, for use by the American Merchant Marine Library Association. The idea of putting book boxes in railroad stations originated many years ago with the late General W. W. Atterbury, then president of the Pennsylvania, who designed and had built the first "Book Box" for the American Merchant Marine Library Association.

NEWS

Storedoor Service Truckers Urged to File Applications

The Interstate Commerce Commission announced on February 3 that question has arisen as to whether the motor vehicle operations of motor carriers who perform storedoor pick-up and delivery service under arrangement with carriers by railroad are subject to the motor carrier act, and if so, to what extent the provisions of that act are applicable to such motor vehicle operations. This question is of such complexity and importance that the commission will not have adequate opportunity to decide it prior to February 12, which is the last day for filing applications under the so-called "grandfather" clause of the act.

For these reasons, the commission has issued a notice strongly urging that all motor carriers who perform pick-up and delivery service for railroads and who were conducting bona fide operation on the applicable statutory date and have so operated since that time, or who began such operations after the applicable statutory date and before October 15, 1935, prepare and file applications for certificates or permits on or before February 12, using Form 1, or, if time does not permit the complete preparation of such form, using Form BMC A.

The questions concerning the applicability of the act to such operations will be determined at the earliest practicable time, but by the filing of such applications all such carriers will have protected their rights under the "grandfather" clause in the event the certificate and permit provisions of the act are found to be applicable.

In an address before the Associated Motor Carriers of Oklahoma at Tulsa on February 3 Commissioner Eastman said that the commission expects shortly to be able to give widespread publicity to a tentative draft of rules and regulations for the protection of the public in the form of insurance policies, surety bonds, self-insurance, and the like for motor carriers for the purpose of inviting widespread comments and criticisms. If it seems necessary, a public hearing will be held. For some time the staff of the Bureau of Motor Carriers has been working on classifications of accounts for trucks, buses, and brokers, and a great deal of preliminary work has been done on the initial safety rules and regulations in an effort to make them comparatively simple and such as to invite a minimum of controversy. Having taken this step it is proposed to proceed as rapidly as possible with the more complex and controversial matters, including the hours of labor of employees.

One of the first applications of a motor carrier for authority to acquire the property of another under the provisions of Section 213 of the motor carrier act was filed with the commission by the Pennsylvania Transfer Company of Pittsburgh, one of a group of companies controlled by the Pennsylvania Railroad, for authority to purchase the property and business of the Chicago-Cincinnati Motor Freight Lines for $15,000.

Division 5 of the commission has issued an order authorizing motor carriers to establish, by filing and posting in accordance with its general regulations, rates on household goods, furniture, store and office equipment, musical instruments and other articles requiring specialized handling and equipment usually employed in moving household goods, dependent upon value declared in writing by the shipper or agreed upon as the released value.

Freight Claim Division, June 2-4

Lewis Pilcher, secretary of the Freight Claim division of the Association of American Railroads, announces that the annual meeting of the division will be held in Chicago, on June 2, 3 and 4.

Deficiency Appropriations Passed

The Senate on February 3 passed the deficiency appropriation bill previously passed by the House which carries $1,035,000 for the motor carrier bureau of the Interstate Commerce Commission for the balance of the present fiscal year, $600,000 for the Railroad Retirement Board, and $3,000,000 for the special pension investigation commission.

Western Roads Allow Half Rates on Government Grain

Western railroads, according to an announcement by the Agricultural Adjustment Administration, have agreed to carry seed wheat and seed oats, now held by the Federal Surplus Commodities Corporation, which is to be sent to country elevators in Minnesota and the Dakotas, at half commercial rates. The country elevators are to sell the seed grain to farmers at reduced prices.

Injunction Against Colorado Trucking Act

An injunction against the Colorado Commercial Truckers Act, as requested by the United Truckmen of Colorado, who charge that the act is unconstitutional, since it places a tax of three mills per ton-mile on commercial trucks and does not tax farmer trucks, has been granted by District Judge James L. Cooper of Canon City. The injunction restrains the State Public Utilities Commission from enforcing the law.

Supreme Court Orders Tax Valuation Reduced Because of Depression

The assessment of the property of the Great Northern made by the North Dakota State Board of Equalization for tax purposes in 1933 and 1932 was held to be grossly excessive in a decision by the Supreme Court of the United States rendered on February 3, finding that the state authorities had failed to give reasonable weight to the falling off of traffic and earnings and the extraordinary shrinkage in values of railroad property, commodity prices and securities generally incident to the business depression. Instead of using the customary method of assessing property, taking into consideration the value of the stocks and bonds and a capitalization of the earnings, the court said, the state board had merely made a very small reduction in the assessment to represent the value of property abandoned. The assessment of $78,832,000 for 1933 was ordered reduced to $68,832,000.

Pointing out that the state had reduced the assessment on the company's property in North Dakota by less than 6 per cent from 1920 to 1933 the court said: "It is everywhere known that the general decline in values in that period was very much greater than that."

"In cases such as this," the court said, "courts are not permitted to weigh evidence of value. They may not substitute their opinions for the findings of assessing officers or boards. But, when the jurisdiction of the district court is appropriately invoked, it is its duty to decide upon the merits of the taxpayer's claim that the assessment of his property was arbitrarily made and is grossly excessive. It clearly appears that the board failed to give reasonable weight to the falling off of petitioner's traffic, gross earnings, operating income, the extraordinary shrinkage in values of railroad properties, the prices of commodities and securities generally, the value of petitioner's property varied with the profitableness of its use, present and prospective."

As to the company's contention that the board's apportionment of system value to North Dakota operated to assess and tax property in other tates, the court said it could not be upheld.

Justices Stone, Brandeis and Cardozo dissented.

Steel Refrigerator Car Exhibited

The Pullman-Standard Car Manufacturing Company has placed on exhibition at the Pullman Car Works, Chicago, a 40-ton refrigerator car made of high-tensile, corrosion-resistant steel, which embodies the extensive use of welding in the con-

struction, and weighs from 10,000 to 13,000 lb. less than a conventional refrigerator car of similar capacity. A descriptive article covering this car will be published in an early issue of the *Railway Age*.

Fourth Section Order on Passenger Fares

The Interstate Commerce Commission has authorized the Chicago, Milwaukee, St. Paul & Pacific in a fourth section order to establish one-way passenger fares between Chicago, Ill., and Cedar Rapids and Marion, Ia., the same as those maintained by the Chicago & North Western between Chicago and Cedar Rapids and to continue fares between points east and west of Marion, without observing the resulting aggregates of fares to and from Marion and other intermediate points.

I.C.C. Suspends Schedules to Reduce Car-Mileage Allowance

The Interstate Commerce Commission has suspended from February 1 until September 1 the operation of schedules which propose to reduce the mileage allowance paid by carriers operating within the United States for the use of privately owned "RB" type refrigerator cars to 1.5 cents per mile, whereas the present mileage allowance is 1.7 cents per mile on all refrigerator cars of this type owned by private car companies and 1.75 cents per mile when owned by the shipper or receiver.

P.W.A. Makes Loan for Grade Crossing Elimination

A loan of $500,000 to the city of Akron, Ohio, to aid in the construction of the Miller avenue and South High street crossings over the tracks of the Pennsylvania, Baltimore & Ohio and Erie has been announced by Public Works Administrator Harold L. Ickes. The loan, made from the P.W.A. revolving fund, will be used by the city in paying its share of the cost of this project. A grant of $250,000 for the project has been made from funds set aside for the grade crossing elimination program.

Woman Leaps Off Hiawatha

A woman passenger leaped from the Hiawatha of the Chicago, Milwaukee, St. Paul & Pacific on February 2, as the train was traveling at 70 miles an hour near Portage, Wis. In an effort to save her life, the train was backed six miles, after a train order was secured, to where the woman lodged and she was found unconscious in a ditch near the track. She suffered a brain concussion and a crushed chest. A doctor on board the train gave the woman first-aid treatment and, when the train reached Mauston, she was taken to a hospital.

Carmalt Appointment Confirmed

The Senate on January 30 confirmed the President's re-appointment of James W. Carmalt as a member of the National Mediation Board after W. M. Leiserson, chairman of the board, had written to Senator Wheeler, chairman of the Senate committee on interstate commerce, urging early attention to the matter because Mr. Carmalt, whose term expired on January 31, was in St. Louis handling the case in which a strike had been threatened on the Mobile & Ohio and it was understood that he would not be authorized to act for the board or to incur any expenses after January 31 unless he had been confirmed by the Senate.

I.C.C. Orders Increases in Georgia Intrastate Rates

Following investigations as to the effect on interstate commerce of intrastate rates required by the state authorities of Georgia, the Interstate Commerce Commission has issued formal orders effective on March 5 directing the railroads to remove the unjust discrimination found by increasing their rates on fertilizer and fertilizer materials to the level of the interstate rates and to apply to the intrastate rates, with some exceptions, the emergency charges authorized by the federal commission in Ex Parte No. 115. Orders were not issued at the time the reports in these cases were made but time was allowed in which the Georgia commission might authorize the changes without an order.

U. S. C. of C. Committee Suggests Consolidations

The Special Committee on Railroad Consolidation of the Chamber of Commerce of United States has submitted a report recommending that, with a view to eliminating unnecessary and wasteful competition among railroad systems and furthering efficiency of service, railroads be permitted and encouraged to effect consolidations subject to the approval of the Interstate Commerce Commission as to public interests involved.

C. P. R. Net Last Year Showed Decrease

The statement of earnings and expenses of the Canadian Pacific for December reveals for the full year 1935 net operating revenues of $22,397,523, as compared with $24,384,023 for 1934, representing a decrease of $1,986,499. Gross revenues for 1935 at $129,678,904 compare with $125,542,954 for 1934, an increase of $4,135,949, but expenses at $107,281,380 showed an increase of $6,122,449 over the preceding year, resulting in the decrease in net operating revenue.

Net for December, 1935, was $3,306,013, against $3,171,408 for December, 1934, an increase of $134,605. Gross for December was $11,581,266, showing an increase of $875,486, while operating expenses at $8,275,252 showed an increase of $740,605.

Government Asks Dismissal of Pension Suit

Dismissal of the bill of complaint filed by the railroads on January 7 in the supreme court of the District of Columbia attacking the constitutionality of the railroad retirement act and the accompanying tax law was asked in answers to the suit filed by the government on February 5. The answers were to have been filed within 20 days but an extension was granted. It was contended that the case does not fall within the equity jurisdiction of the court and that the grounds alleged were insufficient because the Railroad Retirement Board has not issued any orders under the new law. A separate answer filed on behalf of the Commissioner of Internal Revenue took the position that the tax law could not be attacked because it was a general revenue measure.

Derailment at Sunbury, Pa.

Eastbound passenger train No. 14, of the Reading, was derailed on the curve approaching the crossing of the Susquehanna river, at Sunbury, Pa., on the night of January 31, about 11:37, and the locomotive and five cars fell off the bridge, landing partly in the abandoned canal at the west side of the river, and partly on the adjacent highway. One passenger was killed and 30 more were injured; the engineman and fireman were killed.

The locomotive was partially submerged. Officers of the road are reported as giving the cause of the derailment as a broken rail. This accident is the first one in the government records, in which a passenger was killed, since October, 1934.

The Reading has arranged with the Pennsylvania to use the Pennsylvania tracks for a considerable distance while the damaged bridge is being rebuilt.

New Transit Rules Suspended

The Interstate Commerce Commission has suspended from February 1 until September 1 the operation of schedules published by the Chicago & North Western, the Chicago, Burlington & Quincy, and other carriers operating in the Western Trunk Line Territory which propose to establish new transit rules at some 50 or 60 transit stations in W.T.L. territory applicable on lumber and certain articles taking lumber rates originating on the Pacific Coast and destined to eastern points, authorizing refund of inbound charges based on the average wastage not to exceed 33⅓ per cent of the inbound weight. Such refunds vary from 4½ to 17 cents per 100 pounds depending upon the ultimate destination of the manufactured product. For example, at Dubuque, Ia., the refund would be $15.50 per car based upon a 25 per cent wastage on a car of lumber shipped from Longview, Wash., and the product shipped to New York, N. Y.

Intra-State Passes for New Jersey Legislators

Members of the Republican majority in the New Jersey Assembly voted at a recent caucus to support a bill directing the Secretary of State to issue six annual railroad passes for each assemblyman to distribute. The Essex county delegation, comprising the so-called "Clean Government" group of the majority, is now sponsoring a bill to make public the list of passholders, having failed last year in an attempt to have the privilege abolished altogether. It is claimed that the passes, which are for intra-state travel on New Jersey roads, are distributed by the legislators to their political supporters, the latter being designated as committee clerks to comply with the law which stipulates what state officers are eligible.

Meanwhile the impasse between New Jersey and the railroads over the question

of property taxes continues. The carriers, objecting to the State's method of assessment, have carried their fight to the courts, deferring at the same time payment of property taxes accrued during the past several years.

Southern Pacific Fast Freight Service

The Southern Pacific, on February 3, established fast overnight freight service for L.C.L. freight between Portland, Oregon, and Klamath Falls, with pick-up and delivery service performed through the facilities of the Pacific Motor Transport Company. Leaving Portland in the evening shipments arrive in Klamath Falls at 7:40 a.m., Ashland at 9:15 a.m. and Gold Beach at 12 noon the next day.

Club Meetings

The Central Railway Club of Buffalo (N. Y.) will hold its next meeting at the Hotel Statler, Buffalo, on Friday evening, February 14. This will be Chamber of Commerce night, with the work and activities of the Chamber of Commerce presented by Samuel Botsford, vice-president, and members of his staff.

The Western Railway Club will hold its next meeting at Hotel Sherman, Chicago, on Monday evening, February 17. George W. Alcock, assistant to the president of the Lima Locomotive Works, will speak on Old World transportation problems in connection with motive-power design. The address will be illustrated by lantern slides.

Dr. C. M. A. Stine, vice-president of E. I. duPont de Nemours & Company, will address the Traffic Club of Wilmington, Del., at the latter's annual dinner to be held February 11 at the Hotel DuPont in that city. Dr. Stine's subject will be "Change Rules the Rails."

Unified Air Express Service Inaugurated

The nation-wide unified air and air-rail express plan outlined in the *Railway Age* of January 18, page 155, became effective on February 1. Commenting on the new service, Secretary of Commerce Daniel C. Roper made the following statement:

"This co-ordination of transportation facilities which has been effected by the Railway Express Agency and the air transport companies is of great significance to American commerce and industry. Not only does it give complete nation-wide air service, but also provides a unified transportation system which includes the railroads of the nation. The formation of a transportation system offering the public complete air and air-rail express service which will be convenient and simple is an indication of the enterprise through which the carriers of the country are co-operating to meet the demands of present day business."

Illinois Central's Eighty-Fifth Anniversary

The Illinois Central, on February 9, will broadcast an eighty-fifth anniversary program over stations WMAQ, Chicago; WOW, Omaha, Neb.; KSD, St. Louis, WDAF, Kansas City; WWJ, Detroit, Mich.; KSTP, Minneapolis, Minn.; WEBC, Duluth, Minn.; WIBA, Madison, Wis.; and WTMJ, Milwaukee, Wis., commemorating the enactment of a bill by the Illinois legislature on February 10, 1851, creating the company. The charter authorized the construction of a railroad from the southern extremity of Illinois at Cairo to the northwest corner of the state, opposite Dubuque, Iowa, with a branch line to Chicago, a total length of 705 miles. On September 27, 1856, the last rail was laid. Following the Civil War the company began the great expansion of lines which has resulted in a 7,000-mile network of lines interlacing the central states, with a property investment of more than $700,000,000.

Galena & Chicago Union 100 Years Old

January 16 was the 100th anniversary of the chartering of the Galena & Chicago Union Railroad, the first in Chicago and the first to connect that city with the West. The road, which is now a part of the Chicago & North Western, was incorporated and given a charter by Illinois on January 16, 1836, with "authority to build a railroad out into the prairie country and on towards, if not to, the Mississippi river, near the lead mines of Dubuque, Iowa, and Galena, Ill." One peculiarity of the charter was that the directors were authorized to build a turnpike road on any portion of the route of the railroad, with toll gates if they deemed it necessary. When sleighs were used in the winter, the toll was to be half the summer charge.

Surveys of the proposed route were made by James Seymour from the foot of North Dearborn street as far as the Des-Plaines river, but the financial panic of 1837 put a stop to the construction of this and many other roads in the United States, and there was a delay of ten years. Then the survey for the railroad was begun, at a salary of $2.50 per day, by Richard P. Morgan, in September, 1847, near Chicago, on the half-section line corresponding with the center of Kinzie street, on which course it continues for 13 miles.

Strap rail was used on the first construction between Chicago and the Des-Plaines river because of the extraordinary and ruinous financial difficulties of Great Britain which tightened the money market in the United States and prevented the company from getting iron and locomotives from the East and from purchasing edge-rail for the road. On October 24, 1848, the Pioneer, the first locomotive to run on any railroad out of Chicago, was placed on this road. It had been brought to Chicago by boat from the East.

Snow Trains for Chicagoans

The Pennsylvania and the New York Central, for the first time, will operate winter sports excursions, or snow trains, from Chicago to Petoskey, Mich., on February 7 and 8, for the opening of Michigan's ninth annual winter sports carnival, during which, on the dates mentioned, the national amateur outdoor speed skating championship contests are scheduled. The excursion train, on February 7, will leave Chicago at 5:25 p.m. and will arrive in Petoskey the following morning at 6:15. Round-trip fares of approximately 1¼ cents a mile will be good both in coaches and Pullman cars. Round-trip Pullman rates also have been reduced 25 per cent. The special train on February 8 will have coaches only and round-trip fares will be on the basis of approximately ½ cent a mile. Departure will be at 11:59 p.m. and arrival at Petoskey at noon on the following day. For the return trip both coaches and sleeping cars will be operated in an excursion train arriving in Chicago at 6 a.m. February 10.

Management and Labor Committees Meet in New York

Railway labor and management committees formed to negotiate on rules to protect employees displaced by abandonments or unifications held a series of daily meetings in New York this week. No statement as to the status of the negotiations was made other than that matters were proceeding amicably.

H. A. Enochs, chief of personnel of the Pennsylvania, is chairman of the management committee, while George M. Harrison, president of the Brotherhood of Railway and Steamship Clerks and chairman of the Railway Labor Executives Association, heads the labor group. It is understood that the attitude of labor toward continuance of the office of Federal Co-ordinator of Transportation—or more particularly the employment-protecting feature of the Emergency Transportation Act—may be determined by the type of protection for displaced employees which results from the present conferences.

More Time Asked for Investigation of Railroad Finance

A resolution to extend indefinitely the time allowed for the investigation of railroad finance being conducted by the Senate committee on interstate commerce under a Senate resolution of May 20, 1935, was introduced in the Senate on February 4 by Senator Wheeler, chairman of the committee. The resolution would continue the previous resolution in full force and effect during the sessions, recesses, and adjourned periods of the Senate in the Seventy-Fifth and succeeding Congresses and until the final report is submitted to the Senate.

A large force of investigators, assisted by a large part of the force of the Bureau of Accounts of the Interstate Commerce Commission, has been at work on the investigation for several months under the direction of counsel for the committee but no announcement has been made as to the beginning of hearings and it is understood that it is not planned to make a beginning until certain other Senate investigations have had their hearings so that the publicity will not conflict.

Canadian Railway Club Annual Dinner

Over 700 transportation officers and employees attended the thirty-third annual dinner of the Canadian Railway Club in Montreal last week. The program included addresses by Mayor Camillien Houde, W. M. Neal, vice-president, western lines, Canadian Pacific, and Arthur B. Purvis, president, Canadian Industries, Ltd. B. W. Roberts, president of the club, presided.

At the beginning of the dinner, two minutes' silence was observed in memory

of His late Majesty King George V., following which the lights were dimmed and two verses of the hymn "Abide With Me" were sung.

The problems before the railway industry today were discussed by Mr. Neal who, while noting numerous obstacles yet to be overcome, found encouragement in the fact that a general improvement in business is now under way. The mayor referred to efforts now being made to attract more tourists to Montreal and the Dominion generally, while Mr. Purvis spoke of the vital position the railways hold in relation to the prosperity of Canada as a whole.

P.R.R. Musical Festival at Altoona

A unique affair took place at Altoona, Pa., on Saturday evening, January 25, when about 450 singers and musicians, including Pennsylvania Railroad employees in 18 cities, held a musical festival in the Jaffa Mosque. More than 3,000 people were in attendance. Many months ago groups of employees of from 8 to 75 members started to train for the festival at the various Pennsylvania Railroad Y. M. C. A. branches. The Keystone Quartette participated and its leader, G. Curtis Hartel, of the Philadelphia general offices, acted as the leader of the entire festival, after having spent many weeks in rehearsing and drilling the groups at the various points represented.

In addition to the chorus of 375 male singers there was a symphony orchestra of 60 pieces from Altoona. Works Manager F. G. Grimshaw presided. Remarks were also made by J. F. McTyier of the national Y. M. C. A. transportation staff. The cities represented at the festival were Jamaica, L. I.; Elmira, N. Y.; New York City; Jersey City, N. J.; South Amboy, Trenton and Camden; Philadelphia, Pa.; Sunbury, Tyrone, Altoona, Renovo, Conemaugh, Derry, Pitcairn and Youngwood; Crestline, Ohio, and Canton.

Protest Against New York State Canal Laws

The Associated Railroads of New York State—all the principal companies in the state—have issued a circular from their headquarters, 466 Lexington avenue, New York City, calling attention to the enormous expenditures which have been made, and are being made, by the State of New York to support the state canals.

The occasion of this circular is the offering of a resolution now under consideration by the Legislature, calling for amendment to the State Constitution, so as to remove from that document the clause under which the State canals are to be forever toll-free. The railroads do not ask for any provision providing for toll, but simply call for the repeal of this clause, so that the voters may at any time have the privilege of considering the question of tolls or other means of provision for meeting a part of the enormous expense of the canals. In the summary of the pamphlet, it is estimated that the people of the State of New York now bear a tax burden of $10,000,000 *every year* for the interest on canal debts and for maintenance of the property. The canal has been used largely for oil and for grain; and in connection with the record of grain traffic, it is said that in an annual movement of 30 millions to 42 millions of bushels of grain, 95 per cent consisted of shipments coming from Canada.

Activities of Railroad "Fans"

The next meeting of the New York Chapter of the Railway and Locomotive Historical Society will be held on Friday evening, February 14, at 7:30 p.m. in Room 1101, 29 West Thirty-ninth street, New York. Earl Stimson, chief engineer of maintenance, Baltimore & Ohio, will present a paper on the development of rail and track. Mr. Stimson's talk will be illustrated by lantern slides. The program will also include a showing of a B. & O. film depicting the past century's development of the locomotive and train.

The chapter is sponsoring for Sunday, February 16, a trip to Boston, Mass., to visit the Society's railroad historical museum, housed in Baker Library of the Harvard Graduate School of Business Administration. A special low round-trip fare of $3.50 is being offered by the New York, New Haven & Hartford for the journey—the train is scheduled to leave New York at 8:30 a.m. and, returning, to leave Boston at 6 p.m., with arrival in New York at 11:15 p.m.

The trip of the Railroad Enthusiasts, Inc., over the New York Central's West Side freight line in New York has been postponed one week—from February 8 to February 15.

M. & O. Employees Get Increase

The long standing wage controversy on the Mobile & Ohio was ended on February 1, when the second of two 10 per cent wage reductions placed in effect in 1932 was restored. In February, 1932, wages of employees of the Mobile & Ohio were reduced 10 per cent, as were those of other railroads. In June of that year, a second reduction of 10 per cent was placed in effect, owing to the financial condition of the road, which was in receivership. The first 10 per cent reduction has been restored gradually and the receivers of the road, in January of this year, expressed the desire to restore the second 10 per cent as soon as possible. Employees demanded an immediate restoration. The National Mediation Board offered to arbitrate the wage dispute but the railroad was of the opinion that there was no dispute that could be arbitrated, in any real sense of the word, and that even if there should be an arbitration and if it should result in a finding that the receivers must restore wages to basic rates, they would still be unable to do so because of the limited earnings of the road. On January 27, the union called for a strike vote of the 3,200 union employees and on February 1 the second 10 per cent reduction was restored.

Urge Work on Montreal C. N. R. Terminal

A deputation of seven Liberal members of the House of Commons representing the island of Montreal and district last week at Ottawa waited upon Hon. C. D. Howe, Minister of Transport, and Hon. Fernand Rinfret, Secretary of State, urging chiefly as an unemployment relief measure the expenditure of a further sum of money on the Canadian National terminal development in Montreal, construction on which has been suspended for several years.

The delegation specifically suggested that the present large excavation in the heart of the city be filled in and also that the terminal facilities already constructed but abandoned be completed so that they might be used for passenger service. These works would include more work upon the viaduct leading from Lagauchetière street station to Point St. Charles so that it might be used for the accommodation of trains.

While no particular sum of money was mentioned by the members of the House, it has been estimated that it would require an outlay of about $8,000,000 to open the viaduct for passenger service. At least $500,000 would be required, chiefly in wages and as a means of direct unemployment relief, to fill in the excavation in the centre of the city.

The two Cabinet Ministers gave the deputation an attentive hearing and promised careful consideration of their request.

Coal Association Opposes Continuation of Emergency Charges

Dismissal of the petition for indefinite continuation of the existing emergency freight rate surcharges which the railroads recently filed with the Interstate Commerce Commission is sought in a motion filed with the commission by the National Coal Association, contending that the present plea of the railroads is in reality an effort to obtain a reversal of the commission's original decision denying the carriers' original petition for a permanent rate increase.

The motion is supported by an extensive brief from which the following pertinent statement is quoted:

"The record in this proceeding shows that the high level of rates on coal which existed even before the addition of the emergency surcharges was causing a loss of coal traffic to the rail lines, first, by reason of the substitution of other sources of energy such as oil, electric power, and gas which require much less raid transportation and, second, by diverting coal traffic to other forms of transportation, especially trucks. Such changes, particularly the first, are accomplished gradually. With a temporary increase in rates, such as authorized, changes to other forms of power may be postponed. But should the increased cost become permanent, as now proposed, the losses of coal and coke traffic to the rail carriers will be accelerated.

"The record also proved beyond question that such increases, if any, in revenue as might be yielded by the increased rates on coal would inure to the benefit of those rail lines which were least in need of financial assistance. The principal coal-carrying roads are included in the class of rail carriers which may properly be designated as prosperous. Those railroads which individually are most in need of assistance not only fail to benefit from any increases in coal rates but are actually injured thereby because of the fact that many of them must purchase coal from mines of offline roads and pay the additional surcharge or at least a part of it."

Equipment and Supplies

Rio Grande Improvement Program

The Denver & Rio Grande Western plans to spend $6,000,000 during 1936 for the repair and rebuilding of locomotives, improvement of roadbed, air-conditioning of passenger cars and the laying of rail in at least 60 miles of track. The program will be financed entirely by the earnings of the road.

New P.W.A. Loans

Allotment of $2,040,000 from the P.W.A. revolving fund for loans to two railroad companies was announced on January 30 by Public Works Administrator Harold L. Ickes. One loan of $1,755,000 to the Lehigh Valley will be used to build 1,000 coal cars in the company's shops in Sayre and Packerton, Pa.

The Kansas, Oklahoma & Gulf Railway Company will use a loan of $285,000 to purchase 6,752 tons of rails and the necessary fastenings.

Both companies have received previous loans from the Public Works Administration. Previous loans to the Lehigh Valley total $5,345,000 for rebuilding old equipment and purchasing new cars and locomotives. The Kansas, Oklahoma & Gulf received a previous loan of $255,000 with which to purchase 4,000 tons of rails and fastenings.

LOCOMOTIVES

UNION RAILROAD COMPANY.—See item under Bessemer & Lake Erie.

THE SOUTH AFRICAN RAILWAYS AND HARBOURS have asked for bids on about 50 locomotives. A. G. Watson is chief mechanical engineer at Pretoria, Union of South Africa.

THE BESSEMER & LAKE ERIE has ordered 4 switching locomotives of the 0-8-0 type from the American Locomotive Company and 10 of the Texas type (2-10-4) from the Baldwin Locomotive Works; the Union Railroad Company has ordered 5 switching locomotives of the 0-10-2 type from the Baldwin Locomotive Works and 5 switching locomotives of the 0-6-0 type from the Lima Locomotive Works, Inc. Inquiry for this equipment is reported in the *Railway Age* of January 11.

FREIGHT CARS

THE WESTERN MARYLAND is inquiring for from 20 to 25 caboose cars.

THE ALUMINUM COMPANY OF AMERICA is inquiring for 22 to 44 hopper cars of 70 tons' capacity.

THE PANAMA CANAL has ordered, from the Haffner-Thrall Car Company, six ballast cars at a cost of $22,776, for service on the Panama Railroad.

THE WABASH has been authorized by the district court to spend $476,694 for repairing 1,310 freight cars and dismantling 394 freight cars and 16 locomotives.

THE WESTERN PACIFIC has ordered 100 steel Hart selective ballast cars of 50 tons' capacity from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* for January 18.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC, contingent upon a loan from the Reconstruction Finance Corporation, will construct, in its own shops, 1,500 freight cars and 27 passenger cars, including 20 coaches, 2 dining cars, 3 parlor cars and 2 taproom cars.

THE BESSEMER & LAKE ERIE has placed orders for 2000 cars, to be of Cor-Ten steel construction, as follows:

No.	Type	Capacity	Builder
1000	Hopper	90 tons	Pullman-Standard
750	Hopper	70 tons	American Car & Fndry.
250	Hopper	70 tons	General American Car

THE UNION RAILROAD COMPANY has placed orders for 1,000 cars as follows:

No.	Type	Capacity	Builder
600	Gondola	70 tons	Pressed Steel Car
200	Gondola	70 tons	Greenville Steel Car
100	Gondola	70 tons	Ralston Steel Car
100	Gondola	70 tons	Magor Car Corporation

Inquiry for this equipment was reported in the *Railway Age* of January 11.

IRON AND STEEL

THE DENVER & RIO GRANDE WESTERN has ordered 10,000 tons of rails from the Colorado Fuel & Iron Company.

AIR CONDITIONING

Air Conditioning on Canadian Railways

Canadian railways are making arrangements to introduce air conditioning into their train services, according to a joint statement issued by the managements of the Canadian National and the Canadian Pacific. For the coming summer several trains will be so equipped on the more heavily-traveled lines of both companies.

The fitting of present equipment will be undertaken gradually so that the types of air-conditioning devices used for the contemplated year-round operation will be the latest obtainable. Committees of mechanical and traffic officers of the two Canadian railways have been investigating air-conditioning devices for passenger equipment for some time and the work of equipping cars of both roads is now going forward. For the present year it is likely that this work will be confined to sleeping, parlor and observation cars. It is anticipated, however, that the air conditioning will be gradually extended to all passenger cars of practically all important main line trains.

THE ILLINOIS CENTRAL has placed an order with the Pullman-Standard Car Manufacturing Company for Pullman shaft-driven, mechanical air-conditioning systems for 52 passenger cars.

THE NEW YORK, CHICAGO & ST. LOUIS has placed an order with the Pullman-Standard Car Manufacturing Company for Pullman shaft-driven, mechanical air-conditioning systems for two coaches.

Supply Trade

Henry S. Griffin, formerly general superintendent of the **Morris Car Lines,** has become associated with the **Ajax Hand Brake Company,** Chicago.

Ralph E. Meyers has been appointed manager of sales of the **International Creosoting and Construction Company,** with headquarters at Galveston, Tex.

The Graybar Electric Company, Inc., New York, has opened a distributing house at San Diego, Cal., with **R. Redfield** as manager.

The Markham Supply Company, Chicago has been appointed general railway representative for the Chicago, Omaha, Neb., and Twin Cities territory for the **Auto-Tite Joints Company,** Pittsburgh, Pa.

L. A. Paddock, president of the **American Bridge Company,** a subsidiary of the **United States Steel Corporation,** has been elected president also of the **Virginia Bridge Company.** The latter company was purchased recently by another subsidiary of the United States Steel Corporation, the **Tennessee Coal, Iron & Railroad Company.**

George Dandrow, assistant manager of the New York district of the **Johns-Manville Sales Corporation,** has been appointed manager of that district with office at New York. Mr. Dandrow joined the Johns-Manville organization in 1922. After five years in its Boston branch, Mr. Dandrow joined the general engineering staff at New York and for the last few years has been assistant manager of the New York district.

Neil Currie, Jr., for the last six years manager of the **General Electric Company's** Philadelphia, Pa., works, has been appointed manager of its Fort Wayne, Ind., works, to succeed **Walter S. Goll** who, although retiring as manager after 38 years of service, will continue with the company and will be available for special assignments. **R. V. Good,** previously assistant manager at Philadelphia, was appointed managed to succeed Mr. Currie.

R. H. Sonneborn, formerly associated with the **Youngstown Sheet & Tube Company,** with headquarters at Detroit, Mich., has been appointed special sales representative of the tubular division of the **Republic Steel Corporation,** with headquarters at Cleveland, Ohio. **Charles W. East,** assistant manager of sales in the pipe division, with headquarters at Birmingham, Ala., has been appointed district sales manager, with headquarters at Houston, Tex., to succeed **Robert E. Lanier,** resigned.

J. B. Spencer, whose election as president of the **Ramapo Ajax Corporation,** a subsidiary of **The American Brake Shoe & Foundry Company,** was announced in the *Railway Age* of February 1, was born on January 15, 1888, at St. Louis, Mo., and was graduated from Yale University in 1910. In 1917, Mr. Spencer

entered the employ of the Southern Wheel Company, also a subsidiary of The American Brake Shoe & Foundry Company, and

J. B. Spencer

a year later he became assistant to the vice-president of this company. In March, 1921, he was elected vice-president of the company, which position he was holding at the time of his election as president of the Ramapo Ajax Corporation. Mr. Spencer, who will be located at New York, succeeds **J. B. Strong,** whose resignation was reported in the *Railway Age* of February 1.

A. A. Helwig, who has been elected president of the **Peerless Equipment Company,** Chicago, was born at Minneapolis, Minn., in 1892, and served his apprenticeship in the mechanical department of the Minneapolis & St. Louis. Later he was employed in train service on this railroad, the Great Northern and the Chicago, Milwaukee, St. Paul & Pacific. In 1915, he was appointed general foreman of the

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A. A. Helwig

Alton at Kansas City, Mo., and the following year was made traveling inspector in the mechanical department. In 1917, he entered the Army as a second lieutenant and in 1920 resigned as a major after serving three years in France with the First Army Engineers. He returned to railroad service in that year as superintendent of the car department of the Kansas City Terminal Company at Kansas City, and in 1925 resigned to become southwestern sales manager of the Bradford Corporation, with headquarters at St. Louis, Mo. In 1930, he was elected vice-president at Chicago and in March, 1932, resigned to form the Peerless Equipment Company, of which he was elected president on January 1, 1936.

General Railway Signal Company Annual Report

The General Railway Signal Company reported for the year ended December 31, 1935, a net income, after provision for federal and state income taxes, of $698,934, as compared with a net loss of $342,151 for the previous year ended December 31, 1934.

The report reveals that the company entered 1935 with a dollar value of unfilled orders on hand equal to 33.5 times that on the same date in 1934 and to 116 per cent of the average annual value of unfilled orders on hand the same date in the ten-year period ended December 31, 1933.

The dollar value of all orders booked during 1935 equaled 40.5 per cent of that in 1934 and 25.4 per cent of the average annual bookings for the ten-year period ended December 31, 1934. Last year's orders for new signaling projects equaled in dollar value 17.7 per cent of those received in 1934, while the dollar value of 1935 orders for repairs and renewals was 1.09 times that of the previous year. The company entered the current year with unfilled orders equal in dollar value to 16.4 per cent of the business on hand on January 1, 1935, and 16.1 per cent of the average dollar value of unfilled orders on hand on the same date for the ten prior years ending January 1, 1935.

While the management did not feel warranted in predicting that the improvement will be immediate, the report nevertheless expresses hope that "railway purchases of our devices and systems may be substantially increased" in view of "the noted improvement in car loadings and passenger travel which undoubtedly will be reflected in increasing railway earnings." During last year the regular six per cent dividend on the company's preferred stock was paid and a disbursement of one dollar per share was made on the common stock.

The report submitted by A. H. Renshaw, vice-president, records "with great sorrow" the death on January 23 of the company's late president, Wilmer W. Salmon, who "so successfully piloted the course of your company since its formation."

OBITUARY

William B. Ross, president of Edwin S. Woods & Co., Chicago, died in that city of heart failure on February 2.

Construction

UNION PACIFIC.—Plans for the construction of a dining, recreation and lounging lodge on the north rim of the Grand Canyon about 185 miles Southeast of Cedar City, Utah, have been submitted to the National Park Service, Washington, D. C., for approval. The new lodge, which will cost approximately $250,000,- will replace the structure that was destroyed by fire at the close of the 1932 park season. In the event that the plans are approved, construction will begin as soon as crews can enter the district.

In all major particulars the new lodge will be a duplicate of its predecessor. It will be constructed of native stone and logs and will have overall dimensions of 220 ft. by 240 ft. It will include a large dining salon, an outdoor dining terrace overlooking the canyon, a recreation and entertainment hall, a grand observation terrace with an out-of-doors fireplace, a lounge for smoking and bridge incorporating a large fireplace, and a main lobby. In general, the building will be U-shaped, one wing being used for the curio store and tea rooms and other facilities for guests, while the other will embrace the kitchen, refrigerator rooms, bakery, etc.

GENERAL RAILWAY SIGNAL COMPANY

Profit and Loss Account for the Year Ended December 31, 1935

Gross Operating Profit, before Maintenance, Repairs and Depreciation		$1,821,894
Deduct:		
Maintenance and Repairs	$41,395	
Depreciation of Buildings, Machinery and Operating Equipment	93,316	
Amortization of Patents and Development	198,787	
Selling, General and Administrative Expenses	674,968	
Federal Capital Stock Tax	14,708	1,023,174
Net Operating Profit		798,720
Loss on Sales of Marketable Securities	236,554	
Less Appropriated from Reserve	236,554	.....
Interest, Dividends and Sundry Receipts (net)		72,766
		871,486
Provision for Federal and State Income Taxes		172,552
Net Income for Year		$ 698,934
SURPLUS ACCOUNT		
Earned Surplus:		
Earned Surplus as at December 31, 1934		$1,103,481
Net Income for Year		698,934
		1,802,415
Dividends paid, less dividends on Treasury Stock:		
Preferred—6%	$138,228	
Common—$1.00 per share	320,865	459,093
Earned Surplus as at December 31, 1935		1,343,322
Paid-In Surplus:		
Paid-In Surplus at December 31, 1934	1,734,451	
Consideration received for 330 shares of common stock in excess of stated value thereof	3,300	1,737,751
Total Surplus, December 31, 1935		$3,081,073

Financial

BALTIMORE & OHIO.—*R.F.C. Loan.*—The Interstate Commerce Commission has authorized this company to borrow an additional $5,000,000 from the Reconstruction Finance Corporation and to extend until 1939 the maturity date of R.F.C. loans totaling $5,500,000 maturing between January 27 and April 29.

CARLTON & COAST.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon that part of its line extending from Cedar Creek Junction, Ore., to Tillamook Gate, 3.8 miles.

CENTRAL OF NEW JERSEY.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a portion of its line from a point near Greenwich Station, N. J., southerly to the terminus at Bayside, 3 miles.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Trustees' Salaries.*—The Interstate Commerce Commission has authorized maximum compensation of $36,000 per annum for Henry A. Scandrett, and $15,000 each for Walter J. Cummings and George I. Haight as trustees of the property of this company. Compensation of $18,000 per annum is authorized for O. W. Dynes as counsel for the trustees, provided that he receive no other compensation as an employee of the debtor company.

GREAT NORTHERN.—*Bonds.*—In accordance with the arrangements recently made with the Reconstruction Finance Corporation, this company has applied to the Interstate Commerce Commission for authority to issue $99,422,400 of general mortgage 4 per cent convertible bonds, to be used to retire 7 per cent general mortgage bonds maturing July 1, and to issue preferred stock of no par value in exchange for the stock outstanding and in conversion of the bonds when presented. The bonds are to be issued in two series, one convertible into stock at 40 and the other convertible into stock at 75. It is proposed to increase the authorized stock issue from 2,500,000 shares of $100 par value to 5,000,000 shares of no par value and to issue 2,497,483½ shares of the new stock in exchange for old, as well as 1,905,596 for conversion.

MISSOURI-KANSAS-TEXAS.—*Liability for M. K. & O. Bonds.*—The Interstate Commerce Commission has authorized this company to assume liability for the payment of principal and interest on $5,387,000 of first mortgage 5 per cent 40-year bonds of the Missouri, Kansas & Oklahoma maturing in 1942.

MISSOURI PACIFIC.—*Reorganization Plan.*—A hearing before O. E. Sweet, director of the Bureau of Finance of the Interstate Commerce Commission, was begun at Washington on February 4 on the reorganization plan filed by the company last summer, which proposes a consolidation of the various companies in the Missouri Pacific system into one and a reduction in fixed charges to $7,705,049. The first two days of the hearing were devoted to testimony by William Wyer, secretary and treasurer of the Missouri Pacific, in explanation of a number of changes in the plan made since it was originally filed and of over a hundred exhibits bearing on the condition of the various companies and their earning capacity. One of the changes in the plan proposes the issuance of $175,478,859 first mortgage 4 per cent bonds with provision for a sinking fund. O. P. Van Sweringen, chairman of the board, was present and was expected to testify at a later stage in the proceedings. A hearing set for February 3 on the application of George A. Tomlinson for authority to serve as a director of the Fort Worth Belt, which the commission is making an occasion for an investigation of the status of the Midamerica Corporation and of the extent to which it, in combination with other Van Sweringen interests, holds control over the various railroads of the system, was postponed to February 10.

NEW YORK, ONTARIO & WESTERN.—*Assumption of Liability.*—The Interstate Commerce Commission has authorized this company to assume liability for principal and interest of a 5 per cent promissory note for $750,000 issued by the Scranton Coal Company to the Reconstruction Finance Corporation.

PENNSYLVANIA.—*Securities.*—The Interstate Commerce Commission has modified its previous orders with respect to this company's series F equipment trust certificates, reducing the amount to be issued from $23,000,000 to $17,945,000, all but $485,000 of which are to be in definitive form; and the redemption right is to be eliminated from all of them. The certificates are owned by the Public Works Administration.

Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon 20.19 miles of branch line in Pennsylvania.

Abandonment.—The Commission has authorized the company to abandon part of its Coal Lick run branch extending from the Liberty Coal & Coke Company Mine No. 1 to the terminus of the branch at Ache Junction, Pa., 2.6 miles.

Average Prices of Stocks and of Bonds

	Feb. 4	Last week	Last year
Average price of 20 representative railway stocks..	47.53	46.14	32.42
Average price of 20 representative railway bonds..	80.27	79.63	75.87

Dividends Declared

Bangor & Aroostook.—63¢, quarterly; Preferred, $1.75, quarterly, both payable April 1 to holders of record February 29.

Dayton & Michigan.—87½¢, semi-annually; 8 Per Cent Preferred, $1.00, quarterly, both payable April 1 to holders of record March 16.

Green Bay & Western.—Capital Stock, 5 per cent; Class A Debentures, 5 per cent, both payable February 20 to holders of record February 10.

Norfolk & Western.—$2.00, quarterly; Extra, $2.00, both payable March 19 to holders of record February 29.

North Pennsylvania.—$1.00, quarterly, payable February 25 to holders of record February 18.

Philadelphia, Germantown & Norristown.—$1.50, quarterly, payable March 4 to holders of record February 20.

Pittsburgh, Youngstown & Ashtabula.—7 Per Cent Preferred, $1.75, quarterly, payable March 2 to holders of record February 20.

Railway Officers

EXECUTIVE

D. S. Ellis, engineer motive power of the Advisory Mechanical committee of the Van Sweringen Lines, has been appointed mechanical assistant to vice-president of the Chesapeake & Ohio, the New York, Chicago & St. Louis and the Pere Marquette, with headquarters at Cleveland.

I. Walter Booth, secretary and assistant treasurer of the Norfolk & Western, with headquarters at Philadelphia, Pa., has been appointed vice-president in charge of finances and secretary of the company, with the same headquarters, succeeding **E. H. Alden,** who has retired under the company's pension rules. Mr. Booth was born at Philadelphia, Pa., on April 1, 1883, and was educated at the Central High School in that city and at the University of Pennsylvania. He entered the service of the Norfolk & Western as clerk-stenographer to the secretary and assistant treasurer in May, 1902. In July, 1911, he was made chief clerk to the secretary and assistant treasurer and in February, 1914, he was promoted to assistant secretary and cashier. Mr. Booth was appointed secretary and assistant treasurer in March, 1920, the position he held until his recent appointment.

I. Walter Booth

Mr. Alden was born at Bridgewater, Mass., on January 26, 1866, and was educated in the public schools of that city, being graduated from the local high school in 1882. After six years in the service of a grain merchant at Bridgewater and three years in the office of a member of the Philadelphia Bar, he entered the service of the Norfolk & Western as chief clerk to the secretary at Philadelphia, in March, 1891. He held this position also from 1896 to 1902, when the secretary's office was in New York, returning to Philadelphia in the latter year. Mr. Alden was promoted to secretary and assistant treasurer of the company in March, 1905. In March, 1920, he was appointed vice-president in charge of finances, and at that time he was elected to the board of directors. Mr. Alden has

also been chairman of the finance committee and was a member of the committee which in 1917 drafted the regulations for

E. H. Alden

the Norfolk & Western's Relief and Pension department, and has served as a member of the Advisory Committee of the Relief division since its establishment. He was also active in devising and putting into operation the company's pension fund, of which he has been one of the three trustees since its creation in 1925. Mr. Alden, in his capacity of vice-president of finances has had a guiding hand in the N. & W.'s active financial history since the period of federal control, one of the outstanding features of which was the reduction of the road's funded debt from $124,628,000 in 1924 to $52,139,532 at the time of Mr. Alden's retirement. Mr. Alden has also been a vice-president and director of the N. & W.'s subsidiary companies and of the Mutual Fire, Marine & Inland Insurance Co., and is a director of the Philadelphia National Bank.

FINANCIAL, LEGAL AND ACCOUNTING

F. G. McGee, chief clerk to the vice-president in charge of finances of the Norfolk & Western, has been promoted to assistant treasurer, with headquarters at Philadelphia, Pa.

A. H. Kiskaddon, general solicitor of the St. Louis Southwestern, has been appointed general counsel for the trustee, and **Carleton S. Hadley,** assistant general solicitor, has been appointed assistant general counsel for the trustee. In addition to their duties as counsel for the trustee, Mr. Kiskaddon and Mr. Hadley will continue to represent the railway company as general solicitor and assistant general solicitor, respectively. Both have offices at St. Louis, Mo.

Ralph C. Smith, assistant auditor of expenditures of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been appointed general auditor of the Colorado & Southern (a unit of the Burlington system), with headquarters at Denver, Colo., succeeding **E. I. Grenfell,** who has retired under the pension rules of the company.

Mr. Smith was born on April 15, 1892, and entered the service of the Burlington on May 23, 1913, as a clerk. He was appointed traveling auditor on April 1, 1918, and then was appointed chief clerk to the auditor of ticket accounts on August 1, 1923. Four years later Mr. Smith was advanced to assistant auditor of freight accounts and on May 1, 1932, he was made assistant auditor of expenditures, which position he was holding at the time of his recent appointment as general auditor of the C. & S.

Mr. Grenfell was born on December 8, 1865, and first entered railway service in 1883 with the Union Pacific, remaining with that company for 10 years. In 1893 he went with the Union Pacific, Denver & Gulf (now part of the Colorado & Southern), serving as an agent. In 1899, he was appointed traveling auditor on the C. & S., and seven years later he was made chief clerk to the general auditor at Denver. In 1907, Mr. Grenfell was advanced to assistant general auditor of the C. & S., which position he held until 1913, when he was appointed auditor of the Fort Worth & Denver City and the Wichita

R. C. Smith

Valley (both units of the Burlington System), with headquarters at Fort Worth, Texas. In 1916, Mr. Grenfell left these companies to become auditor of the Denver & Salt Lake, with headquarters at Denver, returning to the C. & S. two years later as general auditor. He continued to hold this position until his retirement, except for a period during federal control of the railways, when he served as federal auditor of the C. & S. and the D. & S. L.

TRAFFIC

M. A. Cummings has been elected agent of the Pacific Freight Tariff Bureau, with headquarters at San Francisco, Cal., succeeding F. W. Gomph, deceased.

Frederick M. Klitz, chief of the tariff bureau of the Erie at Cleveland, has been appointed assistant general freight agent with the same headquarters, to succeed **E. J. Farrell,** deceased.

C. E. Rolfe, general traffic manager of the Delaware & Hudson, with headquarters at Albany, N. Y., has retired from the services of that road, and **J. E. Roberts,** assistant general traffic manager, has been appointed general traffic manager to succeed Mr. Rolfe, with headquarters as before at Albany.

C. S. Parrish, commercial agent for the Tennessee Central at Knoxville, Tenn., has been appointed assistant general freight agent in charge of solicitation at Nashville, Tenn.

Earle G. Reed, formerly associated with the agricultural department of the New York Central, has been appointed supervisor of agricultural development of the Union Pacific, with headquarters at Omaha, Neb., to succeed **Robert A. Smith,** who has retired under the company's pension rules.

E. F. Rice, assistant general freight agent on the Minneapolis, St. Paul & Sault Ste. Marie, has beeen appointed general freight agent, with headquarters as before at Minneapolis, Minn., succeeding **J. H. Rees,** who has been assigned other duties. **W. P. Tuller** has been appointed assistant general freight agent at Minneapolis, to succeed Mr. Rice.

W. D. Dimmitt, foreign freight agent of the Norfolk & Western, has been promoted to general foreign freight agent, with headquarters at Norfolk, Va. **W. C. Sawyer, E. M. Dudley** and **J. J. Evich,** assistant foreign freight agents at New York, Chicago and Cincinnati, Ohio, respectively, have been promoted to foreign freight agents, with headquarters as before. **L. H. Butler,** clerk at Norfolk, has been appointed assistant foreign freight agent, with the same headquarters, and **I. W. Begbie,** traveling freight agent at New York, has been promoted to assistant foreign freight agent, with the same headquarters.

OPERATING

Edward F. Morrison, assistant superintendent on the Pennsylvania at Columbus, Ohio, has been appointed assistant superintendent of dining car service, with headquarters at Chicago, to succeed **J. A. Shipley,** deceased.

Claude J. Brown, superintendent of the Missouri Pacific at Osawatomie, Kan., has been appointed general manager of the Chicago, Rock Island & Pacific at Kansas City, Mo., succeeding **Harry L. Reed,** who has been appointed executive general agent at Des Moines, Iowa.

David Crombie, chief of transportation of the Canadian National, with headquarters at Montreal, Que., has retired under the company's pension rules. Mr. Crombie was born at Hamilton, Ont., on May 13, 1864, and received his education at the public schools and Collegiate Institute in that city. He entered railway service in 1883 as a telegrapher for the Grand Trunk at Komoka, Ont., later being transferred to Chatham, Ont. In 1890 he went with the Pere Marquette and served successively with that road as train dispatcher, car service agent, and superintendent of transportation. In February, 1907, he returned to the Grand Trunk as master of transportation at London, Ont., and served consecutively with that road as assistant to general transportation manager at Mont-

real, Que., assistant to first vice-president and general superintendent of transportation. Mr. Crombie was appointed chief of transportation of the Canadian National in 1923.

J. S. Miller, assistant superintendent of the Casper-Sheridan divisions of the Chicago, Burlington & Quincy, with headquarters at Casper, Wyo., has been appointed superintendent of these divisions, with the same headquarters, succeeding **Frank Cone,** who has retired under the pension rules of this company because of ill health. The position of assistant superintendent at Casper has been abolished. **C. W. Dentner,** trainmaster of the McCook division, with headquarters at McCook, Neb., has been transferred to the Casper division, with headquarters at Casper. **L. L. Smith,** chief clerk to the general manager at Omaha, Neb., has been appointed acting trainmaster of the McCook division, to replace Mr. Dentner.

MECHANICAL

R. K. Carr, chief motive power clerk of the Norfolk & Western at Roanoke, has been appointed assistant to superintendent of motive power.

William S. Lammers, assistant mechanical valuation engineer of the Atchison, Topeka & Santa Fe, whose appointment as mechanical valuation engineer, with headquarters as before at Topeka, Kan., was noted in the *Railway Age* of January 25, has been connected with this company in various capacities in the mechanical department for 32 years. Mr. Lammers was born on January 2, 1884, at Ft. Madison, Iowa, and received a public school, business college and correspondence school education, specializing in mechanical drawing and general accounting. He entered the service of the Santa Fe in 1903 as a roundhouse clerk at Ft. Madison, Ia., serving for the next 13 years at various points in this capacity and as a car clerk, equip-

William S. Lammers

ment inspector, machinist helper, machinist, shop timekeeper, head shop timekeeper, and assistant bonus supervisor. In 1916 he entered the valuation department as valuation assistant, later being promoted to office engineer and then to assistant mechanical valuation engineer. He was holding the latter position at the time of his recent appointment as mechanical valuation engineer.

PURCHASES AND STORES

W. F. Myers, local storekeeper on the Chicago, Burlington & Quincy at McCook, Nebr., has been appointed general storekeeper of the Fort Worth & Denver City, the Wichita Valley and the Burlington-Rock Island, with headquarters at Childress, Texas, succeeding **George Baker,** deceased.

G. A. Goerner, traveling storekeeper of the Chicago, Burlington & Quincy, whose appointment as purchasing agent of the Colorado & Southern (a unit of the Burlington System) was noted in the *Railway Age* of January 25, has been connected with the Burlington for more than 31 years. Mr. Goerner was born on January 19, 1890, and entered the service of the Burlington at its West Burlington, Iowa, store, where he served as a bill clerk, re-

G. A. Goerner

quisition clerk, price clerk and stockman. In 1907 he was appointed local storekeeper at Ottumwa, Iowa, and two years later he was made general foreman at West Burlington. In 1913, Mr. Goerner was made assistant chief clerk in the stores department at Galesburg, Ill., being appointed chief clerk at West Burlington in the following year. He was appointed storekeeper at Chicago in 1916 and was made inspector of stores in 1920. After three years in that capacity, Mr. Goerner was appointed storekeeper at Denver, Colo., being transferred to Aurora, Ill., in 1926. He has served as traveling storekeeper with headquarters at Chicago since 1927.

OBITUARY

Percival Hunter, purchasing agent of the Chicago, Burlington & Quincy, with headquarters at Chicago, died in that city on February 3, of heart failure. He was born on December 16, 1874, at Charleston, S. C., and was educated in law at the Chicago College of Law. After practicing his profession for a time, he entered railway service as a clerk in the stores department of the Burlington at Chicago in April, 1903. A few months later he was transferred to the purchasing department and was advanced to various positions in that department until October 1, 1918, when he was promoted to assistant pur-

Percival Hunter

chasing agent. He held the latter position until December, 1931, when he was promoted to purchasing agent, which position he was holding at the time of his death.

Eugene R. Woodson, vice-president of the Railroad Credit Corporation and general assistant to the vice-president in charge of the Finance, Accounting, Taxation, and Valuation Department of the Association of American Railroads, was killed on February 1 after he had jumped or fallen from the window of his office on the eighth floor of the Transportation building, Washington, D. C. Mr. Woodson had been secretary-treasurer of the Railway Accounting Officers' Association from 1911 until its consolidation in 1934 with the Association of American Railroads, after service from 1905 to 1914 with the Norfolk & Western and the Southern. He had also served as counsel for the railroads in accounting revision cases before the Interstate Commerce Commission and was chairman of the Joint Committee of Traffic Executives and Accounting Of-

Eugene R. Woodson

ficers appointed by the Association of Railway Executives in 1934, which has been engaged in simplifying practice with respect to accounting for interline divisions of through rates. Mr. Woodson was active in many civic organizations and was a professor of law at National University, Washington.

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled From 145 Monthly Reports of Revenues and Expenses Representing 149 Class I Steam Railways

FOR THE MONTH OF NOVEMBER, 1935 AND 1934

Item	United States		Eastern District		Southern District		Western District	
	1935	1934	1935	1934	1935	1934	1935	1934
Average number of miles operated	237,306	238,669	58,866	59,075	45,049	45,309	133,391	134,285
Revenues:								
Freight	$248,146,137	$208,551,876	$102,693,082	$86,935,761	$50,278,401	$43,337,057	$95,174,654	$78,279,058
Passenger	27,847,892	24,848,216	16,326,037	14,828,358	3,435,864	3,248,867	8,085,991	6,770,991
Mail	7,695,187	7,581,816	2,948,509	2,911,526	1,395,565	1,356,843	3,351,113	3,313,447
Express	4,501,021	4,405,498	2,106,602	1,691,848	787,894	847,523	1,606,525	1,866,127
All other transportation	6,982,591	6,129,138	3,420,577	3,049,294	691,162	658,568	2,870,852	2,421,276
Incidental	5,517,601	4,860,343	3,094,086	2,718,980	797,561	739,741	1,625,954	1,401,622
Joint facility—Cr.	851,331	763,750	252,721	245,458	166,125	171,888	432,485	346,404
Joint facility—Dr.	211,252	164,896	48,225	48,261	20,378	9,729	142,649	106,906
Railway operating revenues	301,330,508	256,975,741	130,793,389	112,332,964	57,532,194	50,350,758	113,004,925	94,292,019
Expenses:								
Maintenance of way and structures	31,398,220	27,666,391	12,111,527	10,535,805	6,157,700	5,745,279	13,128,993	11,385,307
Maintenance of equipment*	58,129,857	50,354,771	25,707,570	21,852,855	11,436,949	10,084,806	20,985,338	18,417,110
Traffic	7,741,526	7,372,660	2,901,126	2,772,572	1,513,303	1,446,108	3,327,097	3,153,980
Transportation	106,870,300	95,597,925	48,265,147	43,531,600	17,769,784	16,182,420	40,835,369	35,883,905
Miscellaneous operations	2,515,760	2,145,400	1,215,702	1,029,440	268,045	243,479	1,032,013	872,481
General	12,261,329	14,151,173	5,499,761	5,820,738	2,018,754	2,463,502	4,742,814	5,866,933
Transportation for investment—Cr.	333,593	302,041	64,407	80,124	23,070	37,764	246,116	184,153
Railway operating expenses	218,583,399	196,986,279	95,636,426	85,462,886	39,141,465	36,127,830	83,805,508	75,395,563
Net revenue from railway operations	82,747,109	59,989,462	35,156,963	26,870,078	18,390,729	14,222,928	29,199,417	18,896,456
Railway tax accruals	18,062,106	17,196,028	7,413,336	7,469,767	4,127,168	3,441,351	6,521,602	6,284,910
Uncollectible railway revenues	100,842	70,098	65,462	29,539	7,345	10,302	28,035	30,257
Railway operating income	64,584,161	42,723,336	27,678,165	19,370,772	14,256,216	10,771,275	22,649,780	12,581,289
Equipment rents—Dr. balance	7,329,378	7,186,941	3,590,673	3,491,855	251,315	272,974	3,487,390	3,422,112
Joint facility rent—Dr. balance	3,020,477	2,995,890	1,722,937	1,679,225	338,344	360,817	959,196	955,848
Net railway operating income	a 54,234,306	b 32,540,505	22,364,555	14,199,692	13,666,557	10,137,484	18,203,194	8,203,329
Ratio of expenses to revenues (per cent)	72.54	76.66	73.12	76.08	68.03	71.75	74.16	79.96
* Includes:								
Depreciation	16,023,718	14,992,808	7,100,991	6,612,406	3,105,882	2,911,321	5,816,845	5,469,081
Retirements	185,376	166,827	62,317	d 57,977	23,510	164,884	99,549	59,920
Maintenance of equipment befor depreciation and retirements	41,920,763	35,195,136	18,544,262	15,298,426	8,307,557	7,008,601	15,068,944	12,888,109
Net railway operating income before depreciation and retirements	70,443,400	47,700,140	29,527,863	20,754,121	16,795,949	13,213,689	24,119,588	13,732,330

FOR ELEVEN MONTHS ENDED WITH NOVEMBER, 1935 AND 1934

Average number of miles operated	237,716	239,027	58,916	59,082	45,206	45,413	133,594	134,532
Revenues:								
Freight	$2,555,282,423	$2,434,043,433	$1,089,182,093	$1,033,323,842	$503,459,431	$480,053,661	$962,640,899	$920,665,930
Passenger	323,526,542	314,306,285	188,183,416	188,095,006	41,611,232	40,271,117	93,731,894	85,940,162
Mail	82,412,999	81,803,263	31,734,483	31,682,603	14,642,679	14,392,815	36,035,837	35,727,845
Express	48,428,720	49,168,406	19,871,535	20,509,053	10,403,550	9,634,788	18,153,635	19,024,565
All other transportation	75,372,740	69,162,855	37,038,925	35,494,007	7,312,363	6,589,874	31,031,452	27,078,974
Incidental	62,608,428	59,184,221	32,911,185	31,584,750	9,063,095	8,572,563	20,634,148	19,026,908
Joint facility—Cr.	8,899,211	8,453,841	2,728,863	2,642,503	1,974,506	1,939,373	4,195,842	3,871,965
Joint facility—Dr.	2,261,265	2,063,273	584,345	545,640	198,005	181,619	1,478,915	1,336,014
Railway operating revenues	3,154,269,798	3,014,059,031	1,401,056,155	1,342,786,124	588,268,851	561,272,572	1,164,944,792	1,110,000,335
Expenses:								
Maintenance of way and structures	365,113,762	339,966,303	139,276,015	134,636,059	68,661,191	65,701,202	157,176,556	139,629,042
Maintenance of equipment†	619,513,248	589,289,949	273,101,528	263,101,777	118,558,107	111,947,562	227,853,613	214,240,610
Traffic	86,139,236	81,776,979	32,486,257	31,010,895	16,454,213	15,585,870	37,198,766	35,180,214
Transportation	1,141,694,424	1,065,787,399	523,074,399	496,074,500	190,097,929	177,737,959	428,522,096	391,974,940
Miscellaneous operations	27,521,959	24,599,211	12,664,312	11,891,114	3,245,597	2,852,731	11,612,050	9,855,366
General	131,026,097	145,407,538	59,790,103	61,386,321	22,739,743	24,601,616	48,496,251	59,419,601
Transportation for investment—Cr.	3,238,363	2,792,225	652,670	805,670	363,810	294,715	2,221,883	1,691,840
Railway operating expenses	2,367,770,363	2,244,035,154	1,039,739,944	997,294,996	419,392,970	398,132,225	908,637,449	848,607,933
Net revenue from railway operations	786,499,435	770,023,877	361,316,211	345,491,128	168,875,881	163,140,347	256,307,343	261,392,402
Railway tax accruals	222,353,664	225,801,989	93,203,954	95,050,496	46,007,333	44,484,718	83,142,377	86,266,775
Uncollectible railway revenues	1,022,301	1,006,712	539,788	513,456	108,693	160,296	373,820	332,960
Railway operating income	563,123,470	543,215,176	267,572,469	249,927,176	122,759,855	118,495,333	172,791,146	174,792,667
Equipment rents—Dr. balance	78,885,507	83,365,054	37,562,542	40,620,207	3,468,830	5,386,151	37,854,135	37,358,696
Joint facility rent—Dr. balance	32,536,848	33,387,528	18,514,700	18,505,829	3,248,825	4,071,830	10,773,323	10,809,869
Net railway operating income	c 451,701,115	c 426,462,594	211,495,227	190,801,140	116,042,200	109,037,352	124,163,688	126,624,102
Ratio of expenses to revenues (per cent)	75.07	74.45	74.21	74.27	71.29	70.93	78.00	76.45
†Includes:								
Depreciation	175,838,627	169,679,342	77,329,971	74,915,078	34,195,761	32,165,943	64,312,895	62,598,321
Retirements	1,741,193	3,971,760	717,437	717,624	367,106	1,658,630	656,650	1,595,506
Maintenance of equipment befor depreciation and refirements	441,933,428	415,638,847	195,054,120	187,469,075	83,995,240	78,122,989	162,884,068	150,046,783
Net railway operating income before depreciation and retirements	629,280,935	600,113,696	289,542,635	266,433,842	150,605,067	142,861,925	189,133,233	190,817,929

a Includes credits to General Expenses in the amount of $324,351 on account of reversal of charges previously made for liability under the Railroad Retirement Act of 1934.

b Includes charges to General Expenses in the amount of $1,922,239 on account of accruals for liability under the Railroad Retirement Act of 1934.

c Includes credits to General Expenses in the amount of $8,062,411 on account of reversal of charges previously made for liability under the Railroad Retirement Act of 1934.

d Deficit or other reverse items.

e Includes charges to General Expenses in the amount of $10,333,705 on account of accruals for liability under the Railroad Retirement Act of 1934.

Compiled by The Bureau of Statistics, Interstate Commerce Commission. Subject to Revision.

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1935

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depr. & retir. 1935	After depr. & retir. 1934	Before depr. & ret.
Akron, Canton & Youngstown	Dec.	171	$167,344	$13	$179,416	$28,833	$14,227	$8,406	$54,275	$114,541	63.8	$64,875	$57,823	$41,122	$36,534	$45,831
	12 mos.	171	1,880,743	438	1,986,860	330,418	205,250	99,627	611,002	1,334,947	67.2	651,913	560,255	383,048	286,761	442,176
Alton	Dec.	956	914,286	175,783	1,283,803	106,061	200,589	46,931	504,022	897,487	69.9	386,316	336,850	193,210	9,505	220,561
	12 mos.	950	10,231,580	1,750,905	13,969,218	2,451,944	2,341,063	561,702	5,623,202	11,670,589	83.5	2,298,629	1,467,848	—416,226	221,040	—75,445
Atchison, Topeka & Santa Fe System	Dec.	13,259	9,287,964	1,178,593	11,804,539	1,783,192	2,791,612	440,688	4,386,237	9,815,199	83.1	1,989,340	1,144,844	1,146,794	360,468	2,081,447
	12 mos.	13,285	109,685,779	13,447,074	135,686,392	18,726,710	33,134,512	4,796,023	48,423,929	109,423,484	80.6	26,262,908	15,738,975	15,703,352	15,229,319	27,052,050
Atlanta & West Point	Dec.	93	92,709	24,228	140,653	14,887	25,939	7,482	59,949	118,581	84.3	22,072	15,300	—3,034	—26,685	2,644
	12 mos.	93	1,102,469	243,600	1,586,807	219,986	305,959	86,954	666,494	1,393,035	87.8	193,772	112,887	—50,433	—153,636	19,894
Western of Alabama	Dec.	133	79,679	24,678	121,503	19,326	29,233	7,081	51,448	115,303	94.9	6,200	—940	5,479	—19,213	13,618
	12 mos.	133	934,619	249,304	1,365,498	256,524	351,401	83,208	583,959	1,371,332	100.4	—5,834	—102,245	—48,598	—55,651	52,613
Atlanta, Birmingham & Coast	Dec.	639	203,920	10,163	245,656	22,950	52,372	21,847	111,139	233,730	95.1	11,926	1,134	—13,882	—43,327	—1,892
	12 mos.	639	2,560,416	98,327	3,009,163	492,241	561,950	251,110	1,199,200	2,799,968	93.0	209,195	59,940	—96,639	—333,300	45,186
Atlantic Coast Line	Dec.	5,145	2,368,938	449,942	3,281,701	308,367	720,823	143,400	1,384,154	2,724,926	83.0	556,775	428,804	320,345	504,731	507,861
	12 mos.	5,147	28,592,602	5,561,189	39,042,246	4,677,569	8,233,650	1,433,723	15,751,475	32,063,675	82.1	6,978,571	3,339,207	2,578,763	4,289,557	4,848,251
Charleston & Western Carolina	Dec.	342	146,567	1,312	152,387	21,640	26,275	6,452	57,184	116,750	76.6	35,637	29,486	31,861	30,750	38,165
	12 mos.	342	1,873,947	15,590	1,943,368	307,043	327,274	72,570	669,012	1,436,506	73.9	506,862	327,119	326,335	381,262	405,615
Baltimore & Ohio	Dec.	6,439	9,993,819	945,829	11,784,398	865,364	2,614,193	361,664	4,418,700	8,939,281	75.9	2,845,117	2,306,934	1,983,763	1,775,121	2,605,607
	12 mos.	6,440	122,787,627	9,887,724	141,873,643	12,083,155	30,498,119	4,447,726	50,300,666	105,464,140	74.3	36,409,503	29,146,388	24,298,957	23,677,939	31,459,613
Staten Island Rapid Transit	Dec.	23	45,973	77,219	130,397	12,752	21,736	2,170	87,688	137,150	105.2	—6,753	—24,515	—40,974	—66,058	—33,571
	12 mos.	23	504,705	901,952	1,504,047	148,896	248,860	21,840	995,547	1,569,531	104.4	—65,484	—272,304	—507,611	—242,796	—420,821
Bangor & Aroostook	Dec.	603	429,012	24,367	479,303	68,018	83,158	5,844	138,210	318,686	66.5	160,617	115,639	116,426	114,508	139,010
	12 mos.	603	5,564,848	252,099	6,067,315	1,101,143	1,000,712	69,159	1,529,880	3,969,370	65.4	2,097,945	1,587,314	1,593,512	1,693,743	1,842,043
Bessemer & Lake Erie	Dec.	225	496,659	981	509,162	60,520	257,642	11,507	144,682	511,848	100.5	—2,686	—53,168	4,518	—170,277	61,429
	12 mos.	225	9,702,770	8,850	9,828,107	1,077,301	3,073,659	138,594	1,846,269	6,501,024	66.1	3,327,083	2,681,497	2,984,691	1,307,203	3,688,037
Boston & Maine	Dec.	1,997	2,633,878	589,860	3,801,577	279,646	382,378	62,368	1,528,416	2,418,953	63.6	1,382,624	1,207,179	1,025,316	1,190,117	1,167,206
	12 mos.	2,015	30,730,735	6,671,100	43,624,737	5,178,736	6,596,981	756,532	17,817,069	32,549,275	74.6	11,075,462	8,646,350	6,617,918	6,893,515	8,284,075
Brooklyn Eastern District Terminal	Dec.	10.91	79,870	.....	81,607	5,972	5,274	56	26,646	43,510	53.3	38,097	30,705	31,030	19,924	.....
	12 mos.	10.91	1,020,580	.....	1,044,417	*61,956	108,764	2,608	306,451	549,498	52.6	494,919	403,993	405,493	332,991	.....
Burlington, Rock Island	Dec.	255	65,675	4,732	75,781	4,743	14,414	4,518	40,982	72,642	95.9	3,139	—105	—12,540	—23,247	—9,716
	12 mos.	271	755,135	47,456	865,328	165,119	194,318	52,037	494,193	996,463	115.2	—131,135	—203,260	—326,628	—283,443	—294,688
Cambria & Indiana	Dec.	37	110,883	.....	111,018	5,942	49,300	345	12,759	73,826	66.49	37,192	41,902	114,714	58,437	130,722
	12 mos.	37	1,130,441	.....	1,132,262	72,331	624,337	4,160	140,377	909,419	80.32	222,843	39,116	838,052	657,824	1,030,244
Canadian Pacific Lines in Maine	Dec.	233	176,160	18,588	208,806	17,678	43,501	8,979	79,353	156,452	74.9	52,354	43,519	15,550	6,578	17,579
	12 mos.	233	1,537,375	183,064	1,882,077	387,641	427,290	110,563	745,200	1,757,593	93.4	124,484	41,638	—179,768	—38,382	—155,720
Canadian Pacific Lines in Vermont	Dec.	85	63,322	10,118	85,575	6,366	21,458	3,990	57,217	94,311	110.2	—8,736	—13,085	.....	.....	—32,126
	12 mos.	85	699,651	111,342	962,695	158,922	252,957	49,215	662,068	1,190,618	123.7	—227,923	—287,273	.....	.....	—488,489
Central of Georgia	Dec.	1,926	912,139	115,699	1,165,181	110,031	255,017	46,929	534,783	1,004,078	86.2	161,103	107,544	84,224	27,785	154,534
	12 mos.	1,926	11,672,250	1,227,336	14,475,545	1,732,865	3,093,474	620,288	5,953,669	12,224,590	84.5	2,250,955	1,391,566	1,039,510	675,683	1,867,548
Central of New Jersey	Dec.	681	2,025,763	329,934	2,535,348	147,084	471,513	45,566	1,074,271	1,851,199	73.0	684,149	225,280	115,232	186,768	249,889
	12 mos.	684	23,224,648	4,322,315	29,522,639	1,991,274	5,489,603	551,072	12,351,756	21,462,672	72.7	8,059,967	3,619,910	2,192,693	3,060,752	3,851,525
Central Vermont	Dec.	455	379,907	39,770	462,681	36,895	77,758	12,932	229,125	379,074	81.9	83,607	94,617	77,701	13,502	106,212
	12 mos.	455	4,483,779	428,931	5,423,305	821,247	1,014,121	170,097	2,533,413	4,779,716	88.1	643,589	474,386	319,536	109,574	663,624
Chesapeake & Ohio	Dec.	3,106	8,666,056	286,124	9,285,601	664,539	1,676,440	196,724	2,232,453	5,085,035	54.8	4,200,566	3,340,211	3,434,865	2,866,028	4,111,955
	12 mos.	3,111	106,801,456	2,850,924	114,031,433	11,410,301	20,068,063	2,205,822	25,810,105	63,289,893	55.5	50,741,540	40,054,344	39,937,282	36,997,795	48,178,247
Chicago & Eastern Illinois	Dec.	931	1,012,706	128,142	1,309,626	131,196	201,601	53,368	492,824	917,322	70.0	392,304	351,914	182,962	260,968	233,117
	12 mos.	931	10,629,560	1,117,992	13,431,904	1,656,141	2,278,902	625,048	5,386,162	10,627,133	79.1	2,804,771	2,160,460	622,754	641,697	1,230,281
Chicago & Illinois Midland	Dec.	131	263,990	1,609	272,035	39,214	48,556	16,955	77,928	198,840	73.1	73,195	56,095	56,903	81,085	70,776
	12 mos.	131	3,138,750	12,984	3,248,356	426,252	672,169	196,032	841,111	2,323,275	71.5	925,081	793,685	820,030	804,488	985,301
Chicago & North Western	Dec.	8,355	4,670,179	886,347	6,329,669	847,980	1,266,617	155,077	2,679,578	5,263,461	83.2	1,066,208	776,726	643,292	417,338	1,062,064
	12 mos.	8,421	59,983,338	8,904,454	77,345,496	12,427,546	16,803,417	1,943,297	30,591,668	65,348,579	84.5	11,996,917	6,574,866	3,578,483	5,202,104	8,704,111
Chicago, Burlington & Quincy	Dec.	9,027	5,730,527	656,701	7,289,326	793,109	1,291,371	210,929	2,813,230	5,373,768	73.7	1,915,558	1,569,176	1,175,789	1,050,470	1,582,117
	12 mos.	9,035	66,817,189	6,978,101	82,925,209	10,824,582	14,950,520	2,600,468	30,844,332	62,544,384	75.4	20,380,825	14,373,676	10,228,355	12,650,936	14,930,541
Chicago Great Western	Dec.	1,512	1,254,868	55,740	1,418,155	43,753	106,234	51,076	494,870	739,181	52.1	678,974	645,154	378,171	29,660	520,507
	12 mos.	1,512	13,917,646	528,503	15,616,643	2,037,722	2,213,029	647,828	6,098,080	11,591,088	74.2	4,025,555	3,417,535	1,307,386	1,200,499	1,824,001
Chicago, Indianapolis & Louisville	Dec.	644	650,631	55,381	805,489	83,868	111,855	27,576	271,766	528,976	65.7	276,513	258,528	151,962	488,726	145,571
	12 mos.	646	6,746,082	526,840	8,255,917	791,023	1,797,491	313,190	3,404,363	6,629,031	80.3	1,626,886	1,359,271	210,703	119,800	722,936

Continued on next left-hand page

PASSENGER TRAIN PERFORMANCE

Depends Upon

DRAWBAR HORSEPOWER

The high drawbar horsepower characteristic of the modern locomotive is essential to meet the demands of modern passenger service.

It gives the high sustained speed required, keeps operating costs down, and increases net revenue.

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LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1935—CONTINUED

Name of road	Period	Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depr.& retir. 1935	After depr.& retir. 1934	Before depr.& ret.
Chicago, Milwaukee, St. Paul & Pac.	Dec.	11,123	$6,286,140	$643,374	$7,789,402	$815,562	$1,476,092	$192,706	$3,162,367	$5,967,464	76.6	$1,821,938	$1,363,609	$942,846	$306,715	$1,355,357
	12 mos.	11,129	77,311,239	6,041,992	92,473,793	17,023,868	17,849,146	2,546,099	36,184,971	76,416,517	82.6	16,057,276	10,038,180	4,723,983	6,539,054	10,170,885
Chicago, Rock Island & Pacific	Dec.	7,574	4,084,138	608,796	5,339,694	547,652	1,567,287	182,975	2,425,702	5,102,271	95.6	237,423	18,650	—212,973	—100,451	153,588
	12 mos.	7,575	50,455,090	6,044,442	63,202,855	7,787,539	14,675,478	2,274,575	27,863,940	56,973,933	90.1	6,228,922	2,233,555	—1,023,558	1,727,645	3,462,013
Chicago, Rock Island & Gulf	Dec.	723	312,660	23,986	332,971	45,270	39,029	15,685	127,698	251,651	75.6	81,320	84,013	213	—26,312	4,252
	12 mos.	722	3,536,813	291,797	3,914,000	550,899	412,034	190,702	1,414,599	2,856,557	73.0	1,057,443	863,185	84,360	—48,845	138,137
Chicago, St. Paul, Minn. & Omaha	Dec.	1,651	1,094,207	150,766	1,355,598	272,559	115,034	34,891	663,437	1,164,917	85.9	190,681	115,244	32,465	—70,754	83,888
	12 mos.	1,652	12,754,183	1,519,500	15,454,289	1,943,772	2,602,201	402,909	7,406,323	13,281,705	85.9	2,172,584	1,302,898	175,578	601,985	804,760
Clinchfield R. R.	Dec.	309	499,260	5,630	510,388	18,799	70,067	16,339	105,555	224,162	43.9	286,226	243,226	268,581	155,618	312,255
	12 mos.	309	5,205,740	47,599	5,315,015	407,987	1,257,612	196,769	1,070,771	3,087,168	58.1	2,227,847	1,766,789	2,047,003	2,043,294	2,574,782
Colorado & Southern	Dec.	1,019	505,102	26,172	589,223	45,778	117,970	11,612	228,601	416,498	70.7	172,725	135,038	101,659	—972	127,866
	12 mos.	1,019	5,344,210	338,687	6,262,295	847,194	1,198,855	150,551	2,473,328	5,033,181	80.4	1,229,114	587,343	349,352	144,619	741,752
Ft. Worth & Denver City	Dec.	804	387,534	47,615	519,165	37,740	49,614	16,871	155,970	278,731	53.7	240,434	365,852	334,405	22,985	325,763
	12 mos.	804	4,244,121	449,832	5,473,927	528,435	888,993	198,133	1,881,004	3,884,695	71.0	1,589,232	1,560,647	1,180,639	1,239,355	1,406,556
Columbus & Greenville	Dec.	167	83,584	10,157	99,932	18,779	12,766	3,907	34,337	80,029	80.1	19,903	19,573	17,339	—10,893	20,133
	12 mos.	167	843,296	78,445	990,966	206,673	146,690	44,423	385,328	897,050	90.5	93,916	59,391	64,944	—3,410	98,835
Delaware & Hudson	Dec.	831	1,736,354	84,670	1,908,617	296,104	515,598	44,704	748,207	1,734,027	90.9	174,590	87,374	78,006	833,042	177,531
	12 mos.	835	20,753,565	1,057,134	22,866,928	3,391,060	6,206,389	574,287	8,889,876	20,512,281	89.7	2,354,647	1,279,441	1,361,885	2,118,875	2,451,469
Delaware, Lackawanna & Western	Dec.	992	2,802,311	619,552	3,894,968	165,145	681,697	110,693	1,828,654	2,972,126	76.3	922,842	621,678	592,656	242,765	817,310
	12 mos.	992	32,944,758	6,484,862	44,722,233	4,263,212	8,665,490	1,374,968	20,551,917	36,968,499	82.7	7,753,734	3,934,890	3,587,608	4,504,180	6,356,428
Denver & Rio Grande Western	Dec.	2,584	1,619,581	76,979	1,788,686	117,556	340,993	53,451	627,289	1,232,843	68.9	555,843	408,673	388,459	269,977	459,980
	12 mos.	2,592	18,470,420	1,301,958	20,944,230	2,491,669	4,861,413	601,383	7,140,624	16,135,468	77.0	4,808,762	3,017,141	2,417,975	2,311,564	3,586,623
Denver & Salt Lake	Dec.	232	243,508	4,807	260,178	22,036	68,111	2,255	58,254	158,196	60.8	101,982	93,348	126,959	210,095	136,407
	12 mos.	232	2,074,823	49,003	2,234,882	261,026	423,916	23,127	514,719	1,276,681	57.1	958,201	778,562	1,260,698	913,122	1,327,277
Detroit & Mackinac	Dec.	242	34,721	2,955	43,494	8,859	10,972	957	23,484	46,283	106.4	—2,789	—4,591	—6,624	—23,341	—3,455
	12 mos.	242	549,215	31,186	654,506	120,962	119,667	10,529	263,109	548,623	83.8	105,883	90,573	63,544	101,920	104,191
Detroit & Toledo Shore Line	Dec.	50	383,730	.....	385,596	16,091	24,901	8,367	85,870	142,366	36.9	243,230	198,867	137,384	67,628	141,983
	12 mos.	50	3,530,155	.....	3,554,326	259,966	315,125	89,585	852,731	1,591,027	44.8	1,963,299	1,640,021	1,037,662	731,070	1,106,250
Detroit, Toledo & Ironton	Dec.	472	725,437	214	741,287	44,793	42,040	14,489	157,353	281,916	38.0	459,371	380,727	335,354	185,886	356,262
	12 mos.	472	7,848,722	2,804	8,103,503	750,613	932,202	130,141	1,619,438	3,638,762	44.9	4,464,741	3,765,933	3,257,259	1,953,028	3,512,228
Duluth, Missabe & Northern	Dec.	559	Dr. 35,443	6,406	Dr. 7,877	143,599	208,237	3,512	140,144	538,331	...	—546,208	—667,841	—657,980	—393,428	—611,449
	12 mos.	560	10,013,297	39,543	11,519,810	1,494,379	2,186,851	41,294	2,467,841	6,642,542	57.7	4,877,268	3,755,614	3,765,586	1,981,648	4,275,091
Duluth, Winnipeg & Pacific	Dec.	178	100,151	3,012	106,761	22,179	22,409	2,418	46,256	97,169	91.0	9,592	4,961	—5,365	10,938	—2,188
	12 mos.	178	1,011,841	25,390	1,072,852	275,927	228,966	21,391	478,981	1,049,786	97.9	23,066	—31,226	—141,978	—43,050	—102,877
Elgin, Joliet & Eastern	Dec.	434	1,218,963	2	1,369,990	107,598	292,806	13,569	487,766	948,962	69.3	421,028	306,692	293,012	150,576	369,504
	12 mos.	440	12,506,411	33	14,203,429	1,360,934	3,028,744	158,402	5,137,840	10,123,781	71.3	4,079,648	2,943,752	2,870,358	661,634	3,772,493
Erie	Dec.	2,295	5,265,454	453,210	6,206,445	438,347	1,163,707	163,640	2,454,373	4,522,899	72.9	1,683,546	1,369,621	1,102,687	790,097	1,456,847
	12 mos.	2,302	64,269,564	4,909,657	75,126,702	6,811,021	14,312,478	1,974,853	28,182,757	54,793,414	72.9	20,333,288	16,323,095	12,960,726	12,699,832	17,041,321
New Jersey & New York	Dec.	45	14,218	47,292	63,390	3,470	Cr. 22,149	551	56,485	43,222	68.2	20,168	16,159	—35,880	—41,968	—72,166
	12 mos.	45	176,946	565,785	765,868	69,277	221,848	10,592	589,893	925,332	120.8	—159,464	—209,374	—421,856	—436,831	—421,724
New York, Susquehanna & Western	Dec.	215	249,788	23,633	287,444	21,742	Cr. 8,205	4,689	125,325	157,168	54.7	130,276	120,607	47,747	42,180	11,585
	12 mos.	215	3,052,100	292,946	3,529,468	319,368	537,774	57,242	1,459,804	2,528,254	71.6	1,001,214	742,201	356,977	343,186	465,957
Florida East Coast	Dec.	712	467,502	131,236	772,246	125,729	210,082	23,295	243,336	647,172	83.8	125,074	69,612	39,875	65,543	78,788
	12 mos.	779	4,794,371	1,905,753	7,729,029	1,430,914	1,676,884	255,328	2,733,526	6,694,208	86.6	1,034,821	228,695	—222,593	225,476	304,171
Fort Smith & Western	Dec.	249	68,572	1,618	73,276	13,817	8,347	5,144	19,840	51,359	70.1	21,917	20,536	13,285	—1,360	13,854
	12 mos.	249	622,883	12,570	673,418	172,873	106,493	63,368	227,660	619,041	91.9	54,377	35,436	—35,377	—29,464	—31,157
Georgia R. R.	Dec.	329	209,959	17,067	261,391	30,328	61,965	16,776	153,358	273,701	104.7	—12,310	—15,715	—1,298	70,651	10,637
	12 mos.	329	2,767,225	167,512	3,215,075	312,146	658,761	202,752	1,437,803	2,752,809	85.6	462,266	407,925	512,887	578,961	664,179
Georgia & Florida	Dec.	408	72,565	3,345	79,708	18,640	17,255	7,434	32,850	77,401	97.1	2,307	—3,045	—4,288	—11,184	941
	12 mos.	408	1,016,787	30,568	1,093,704	251,356	200,499	93,867	398,557	1,000,364	91.5	93,340	36,357	20,677	—61,604	84,371
Grand Trunk Western	Dec.	1,006	1,776,352	80,391	1,997,609	150,109	339,302	64,045	773,314	1,410,004	70.6	587,569	505,318	389,190	78,003	478,803
	12 mos.	1,006	18,707,180	799,811	20,951,609	2,743,685	4,079,719	419,090	8,476,600	16,626,647	79.4	4,324,962	3,412,206	2,015,858	392,467	3,090,500
Canadian Nat'l Lines in New Eng.	Dec.	172	87,127	5,849	102,417	22,630	12,648	1,294	53,730	94,972	92.7	7,445	—12,868	—47,742	—27,679	—44,381
	12 mos.	172	962,316	78,317	1,140,220	311,440	252,798	28,828	684,014	1,376,021	120.7	—235,801	—380,403	—824,179	—789,972	—783,518
Great Northern	Dec.	8,250	4,306,289	461,323	5,350,592	369,812	1,029,791	156,226	2,112,466	3,891,769	72.7	1,458,823	1,554,378	1,522,306	1,204,308	1,810,395
	12 mos.	8,278	10,211,977	4,416,108	81,188,858	6,994,058	12,630,006	2,029,222	25,801,313	50,061,214	61.7	31,127,644	24,901,566	23,483,854	14,101,650	26,910,505

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Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1935—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depr.& retir. 1935	After depr.& retir. 1934	Before depr.& ret.
Green Bay & Western	Dec.	234	$103,867	$1,013	$109,043	$35,492	$10,783	$5,107	$36,097	$92,812	85.1	$16,231	$12,333	$9,805	$22,441	$14,402
	12 mos.	234	1,339,815	11,964	1,412,197	346,230	189,502	65,377	497,134	1,136,580	80.4	275,617	194,535	133,036	21,931	185,423
Gulf & Ship Island	Dec.	259	65,015	9,433	89,818	14,578	15,149	3,365	49,328	88,884	99.0	934	—4,085	—10,785	3,104	—7,218
	12 mos.	259	976,699	104,670	1,263,220	179,198	188,615	35,289	627,761	1,092,286	86.5	170,934	9,743	—95,752	—150,098	—47,868
Gulf, Mobile & Northern	Dec.	936	458,959	30,466	514,977	62,211	78,346	32,181	148,151	342,123	66.43	172,854	137,936	81,290	56,797	100,173
	12 mos.	936	5,643,154	269,598	6,173,210	767,961	936,753	385,986	1,760,657	4,089,420	66.24	2,083,790	1,704,260	1,100,943	512,547	1,315,182
Illinois Central	Dec.	4,980	6,050,311	793,790	7,451,463	1,565,227	5,341,791	235,728	2,950,202	10,540,396	141.5	—3,088,933	—3,515,448	—3,526,432	1,610,178	—2,969,583
	12 mos.	4,980	69,796,584	7,967,195	84,798,651	8,984,446	2,358,091	2,406,098	32,492,854	72,056,675	85.0	12,741,976	7,453,622	6,108,950	12,688,092	12,932,975
Yazoo & Mississippi Valley	Dec.	1,619	923,666	88,623	1,093,427	96,760	576,128	34,664	447,529	1,217,013	111.3	—123,586	—240,280	—303,039	143,751	—259,331
	12 mos.	1,634	10,971,853	815,223	12,698,045	1,116,015	2,566,369	358,184	5,123,545	9,796,904	77.2	2,901,141	1,504,240	560,293	734,093	1,106,255
Illinois Central System	Dec	6,600	6,973,977	882,413	8,544,890	1,661,987	5,917,919	270,392	3,397,731	11,757,409	137.6	—3,212,519	—3,752,883	—3,831,546	1,763,714	—3,831,546
	12 mos.	6,615	80,768,437	8,782,418	97,496,696	10,100,461	26,147,460	2,764,282	37,616,399	81,853,579	84.0	15,643,117	8,913,073	6,724,243	13,543,614	14,094,230
Illinois Terminal	Dec.	519	379,101	75,105	488,658	47,096	57,938	15,378	167,757	307,205	62.87	181,453	151,949	131,886	125,315	150,928
	12 mos.	524	4,120,937	750,065	5,312,789	593,826	762,533	189,943	1,839,623	3,565,711	67.12	1,747,078	1,418,698	1,219,921	1,003,617	1,453,248
Kansas City Southern	Dec.	878	787,173	19,421	906,035	81,179	161,607	46,147	264,481	611,570	67.5	294,465	251,518	198,938	13,516	227,642
	12 mos.	878	8,588,947	221,517	9,981,091	987,964	1,713,080	571,367	3,159,741	7,205,687	72.2	2,775,404	1,995,141	1,486,403	1,291,453	1,844,686
Kansas, Oklahoma & Gulf	Dec.	326	183,062	782	186,869	2,884	12,310	7,844	42,108	61,626	33.0	125,243	89,975	72,145	64,491	74,394
	12 mos.	326	1,971,699	5,564	2,010,079	292,818	194,983	90,027	476,291	1,077,204	53.6	932,875	750,977	551,037	521,824	574,801
Lake Superior & Ishpeming	Dec.	160	42,466	120	44,751	20,464	27,125	545	23,391	77,919	174.1	—33,168	—39,403	—41,575	—43,939	—34,422
	12 mos.	160	1,951,458	1,354	2,224,160	307,971	288,353	7,814	401,840	1,067,999	48.0	1,156,161	856,584	834,857	270,648	906,595
Lehigh & Hudson River	Dec.	96	122,774	110	123,462	13,296	20,604	3,297	46,756	90,885	73.6	32,577	20,739	8,356	19,853	12,128
	12 mos.	96	1,474,808	1,814	1,493,250	152,016	228,418	38,491	516,365	1,013,308	67.9	479,942	346,519	192,796	151,689	241,610
Lehigh & New England	Dec.	219	276,936	235	279,463	27,538	57,023	5,753	108,745	214,332	76.7	65,131	54,827	53,290	83,472	71,450
	12 mos.	220	3,401,781	3,136	3,432,725	396,242	711,790	67,750	1,256,646	2,593,600	75.6	839,125	755,542	822,797	761,746	1,048,647
Lehigh Valley	Dec.	1,336	3,215,338	258,330	3,718,773	147,435	670,216	107,933	1,615,972	2,705,658	72.8	1,013,115	876,869	750,610	742,265	951,595
	12 mos.	1,348	35,411,494	2,345,197	40,641,957	3,196,055	7,284,075	1,329,523	18,261,012	31,967,410	78.7	8,674,147	6,540,052	4,982,747	5,338,991	7,439,243
Louisiana & Arkansas	Dec.	608	371,946	11,436	409,879	58,272	75,720	29,548	114,987	275,876	67.3	134,003	110,957	93,061	72,988	107,434
	12 mos.	608	4,350,706	122,523	4,793,954	653,920	780,425	305,332	1,214,229	3,122,996	65.1	1,670,958	1,259,184	1,132,072	1,007,116	1,318,672
Louisiana, Arkansas & Texas	Dec.	255	80,286	306	82,761	21,254	8,625	4,774	33,134	66,513	80.4	16,248	13,852	2,429	15,948	3,201
	12 mos.	255	937,556	3,088	968,787	229,210	105,724	55,030	324,779	754,051	77.8	214,736	188,314	44,923	23,878	54,083
Louisville & Nashville	Dec.	5,009	5,651,354	616,824	6,799,976	736,756	1,352,697	174,980	2,336,932	4,905,521	72.1	1,894,455	1,608,491	1,642,034	1,204,342	1,992,964
	12 mos.	5,044	63,931,182	5,772,546	75,694,731	8,238,957	17,214,874	2,021,425	26,660,846	57,795,870	76.4	17,898,861	13,572,341	13,961,959	12,967,297	18,203,076
Maine Central	Dec.	1,046	796,956	94,178	1,003,903	107,251	160,767	12,024	367,516	694,562	69.2	309,341	253,910	175,296	215,917	220,494
	12 mos.	1,052	9,336,556	982,709	11,431,533	1,628,147	1,918,535	138,856	4,257,776	8,406,899	73.5	3,024,634	2,430,968	1,809,732	1,838,070	2,358,595
Midland Valley	Dec.	361	115,605	18	116,977	7,828	7,089	2,336	30,549	53,851	46.0	63,126	55,912	47,542	58,612	49,925
	12 mos.	361	1,306,339	117	1,329,766	171,300	127,452	27,998	341,483	728,604	54.8	601,162	513,863	421,752	407,353	445,985
Minneapolis & St. Louis	Dec.	1,624	586,793	16,729	639,205	63,327	103,706	35,056	301,735	539,576	84.4	99,629	74,387	39,861	—22,375	69,331
	12 mos.	1,636	6,983,932	161,326	7,610,791	1,000,300	1,396,833	369,295	3,553,003	6,763,381	88.9	847,410	552,421	101,621	40,723	491,336
Minn., St. Paul & S. S. Marie	Dec.	4,296	1,428,002	127,589	1,721,175	235,930	306,997	59,318	822,840	1,534,619	89.2	186,556	69,866	—35,842	—81,114	66,893
	12 mos.	4,297	20,718,988	1,122,798	23,745,223	3,389,372	4,276,917	700,387	9,901,406	19,439,799	81.9	4,305,424	3,026,540	1,478,904	1,243,926	2,647,960
Duluth, South Shore & Atlantic	Dec.	550	118,394	19,226	149,615	39,437	34,508	4,062	76,185	159,593	106.7	—9,978	—13,997	—17,352	—49,453	—9,527
	12 mos.	556	2,016,694	134,122	2,360,044	404,274	406,180	52,050	928,285	1,835,246	77.8	524,798	467,410	369,590	138,595	466,287
Spokane International	Dec.	163	39,265	2,160	46,933	15,059	4,669	1,815	19,792	45,631	97.2	1,302	—2,615	—5,330	—8,575	—4,251
	12 mos.	163	508,312	20,926	594,127	162,821	67,324	21,544	243,453	539,671	90.8	54,456	13,219	—18,887	—57,253	—5,842
Mississippi Central	Dec.	150	57,528	2,270	61,983	9,174	11,044	6,494	27,766	60,995	98.4	988	4,593	1,097	—9,831	3,790
	12 mos.	150	677,455	22,237	726,055	111,077	133,769	83,017	246,842	638,468	87.9	87,587	59,677	25,616	—18,437	57,797
Missouri-Arkansas	Dec.	364	63,726	1,441	71,137	21,096	12,088	4,283	35,162	82,196	115.5	—11,059	—14,252	—22,405	.....	—21,562
	12 mos.	364	615,129	11,825	680,608	158,187	79,080	32,974	245,864	561,919	82.6	118,689	98,897	29,644	.....	36,552
Missouri-Illinois	Dec.	208	76,899	589	79,148	25,498	10,531	2,244	27,778	71,052	89.8	8,096	10,030	2,042	8,669	4,946
	12 mos.	208	1,022,275	9,604	1,053,296	272,409	138,905	32,030	347,126	846,280	80.3	207,016	161,939	51,122	59,775	86,329
Missouri-Kansas-Texas Lines	Dec.	3,293	2,020,905	216,136	2,505,401	268,940	327,766	122,668	848,211	1,709,018	68.2	796,383	769,770	565,472	—36,628	670,687
	12 mos.	3,293	22,505,683	1,960,451	27,422,354	3,830,845	4,827,755	1,331,996	9,965,854	21,516,648	78.5	5,905,706	4,315,611	1,920,843	1,708,707	3,213,740
Missouri Pacific	Dec.	7,228	5,487,391	360,859	6,422,381	827,283	1,304,136	228,364	2,508,514	5,110,847	79.6	1,311,534	989,631	544,677	39,393	889,192
	12 mos.	7,232	63,508,741	4,184,569	74,578,498	11,045,210	15,976,729	2,697,442	28,166,995	60,750,184	81.5	13,828,314	10,150,877	5,230,583	6,118,046	9,502,030
Gulf Coast Lines	Dec.															
	12 mos.															

(Figures not yet available)

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Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1935—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depr.& retir. 1935	After depr.& retir. 1934	Before depr.& ret.
International-Great Northern	Dec.	1,154	$720,868	$70,846	$927,103	$139,517	$234,679	$32,110	$393,878	$860,200	92.78	$66,903	$52,824	—$22,236	—$30,192	$12,247
	12 mos.	1,154	9,338,792	747,202	11,543,449	1,675,711	2,356,005	347,534	4,605,997	9,599,629	83.16	1,943,820	1,557,556	529,900	1,370,550	913,993
Mobile & Ohio	Dec.	1,201	651,062	34,967	737,160	99,869	167,639	40,447	309,543	657,183	89.2	79,977	62,606	13,684	—62,743	66,005
	12 mos.	1,201	7,935,555	332,126	8,853,751	1,379,759	1,971,500	469,434	3,495,257	7,730,359	87.3	1,123,392	750,889	72,131	—30,048	749,010
Monongahela	Dec.	174	345,473	1,045	349,025	32,855	27,359	422	78,822	142,492	40.8	206,533	188,449	98,932	41,163	104,895
	12 mos.	174	3,810,952	8,925	3,844,803	369,148	315,985	5,271	812,997	1,544,612	40.2	2,300,191	2,121,240	1,128,395	1,081,739	1,199,837
Montour	Dec.	57	134,019	.....	135,044	10,327	50,491	877	40,596	110,019	81.5	25,025	13,397	29,825	52,323	38,797
	12 mos.	57	1,977,211	.....	1,988,377	157,149	473,077	10,694	444,579	1,166,448	58.7	821,929	636,323	844,898	774,331	952,690
Nashville, Chattanooga & St. Louis	Dec.	1,154	777,758	108,116	1,011,975	132,694	222,274	58,378	452,481	934,949	92.4	77,026	40,218	38,548	20,639	82,546
	12 mos.	1,173	9,976,900	951,446	12,303,492	1,639,944	2,927,650	692,499	5,113,814	11,120,990	90.4	1,182,502	725,318	523,010	953,544	1,053,056
Nevada Northern	Dec.	165	39,931	1,293	46,500	11,563	5,238	753	9,318	30,989	66.6	15,511	5,401	7,316	—683	8,197
	12 mos.	165	353,446	13,070	422,598	105,040	42,529	8,904	98,050	298,049	70.5	124,549	47,612	87,607	36,401	98,783
New York Central	Dec.	11,330	19,366,398	5,592,147	28,275,898	3,253,595	6,688,412	521,193	11,096,172	23,114,411	81.7	5,161,487	4,854,788	3,491,373	1,575,958	4,906,366
	12 mos.	11,330	218,260,325	55,292,023	310,192,979	31,478,861	65,297,666	6,397,438	117,380,073	237,197,731	76.5	72,995,248	52,213,608	36,748,247	29,160,928	53,442,495
Pittsburgh & Lake Erie	Dec.	233	1,354,181	60,872	1,454,395	91,716	567,006	28,718	502,495	1,271,860	87.5	182,535	97,911	238,828	318,563	391,005
	12 mos.	233	15,918,415	537,248	16,945,794	1,475,991	5,336,148	317,076	5,591,634	13,658,184	80.6	3,287,610	2,032,428	3,762,399	3,304,833	5,586,892
New York, Chicago & St. Louis	Dec.	1,704	2,805,441	75,327	2,990,975	242,157	429,902	107,408	1,064,267	1,961,995	65.6	1,028,980	924,301	677,144	444,467	813,694
	12 mos.	1,692	32,221,852	800,315	34,243,513	3,557,669	4,999,433	1,274,760	11,797,651	23,107,185	67.5	11,136,328	9,793,941	6,759,546	5,509,427	8,400,400
New York, New Haven & Hartford	Dec.	2,061	3,442,934	2,098,713	6,327,016	641,424	1,097,794	84,189	2,483,343	4,698,756	74.3	1,628,260	1,179,488	591,701	501,421	879,227
	12 mos.	2,070	40,834,001	22,108,806	71,113,280	7,689,636	12,070,641	1,032,205	27,680,623	52,414,423	73.7	18,698,857	14,542,788	8,179,548	5,617,020	11,643,485
New York Connecting	Dec.	20	226,363	.....	239,081	8,618	10,688	.....	55,480	75,803	31.7	163,278	129,354	101,810	134,435	101,810
	12 mos.	20	2,590,053	.....	2,727,298	140,329	88,618	.....	409,657	650,506	23.9	2,076,792	1,668,888	1,256,610	1,263,624	1,256,610
New York, Ontario & Western	Dec.	567	760,289	15,992	839,897	55,254	116,303	11,446	276,939	486,270	57.9	353,627	334,591	298,228	213,580	323,041
	12 mos.	567	7,593,449	384,610	8,590,512	921,272	1,483,774	137,497	3,544,998	6,389,754	74.4	2,200,758	1,802,669	1,360,560	1,252,077	1,645,639
Norfolk & Western	Dec.	2,166	6,506,884	203,379	6,928,756	652,942	1,061,058	117,468	1,590,603	3,562,479	51.4	3,366,277	2,433,364	2,777,859	2,023,318	3,119,068
	12 mos.	2,168	73,661,075	1,841,602	78,044,384	8,577,224	14,411,433	1,433,018	17,949,958	44,499,165	57.0	33,545,219	24,698,114	27,303,818	22,518,286	31,423,531
Norfolk Southern	Dec.	835	273,871	9,484	302,651	62,344	50,187	21,070	134,233	269,171	88.9	33,480	25,731	10,508	9,648	19,889
	12 mos.	920	4,279,653	120,268	4,621,833	865,335	635,843	260,289	1,762,793	3,720,310	80.5	901,523	625,186	325,428	489,653	435,243
Northern Pacific	Dec.	6,722	3,450,779	358,268	4,258,504	305,029	597,177	133,537	1,680,086	2,980,367	70.0	1,278,137	1,010,615	1,231,975	944,611	1,500,583
	12 mos.	6,725	45,262,826	3,525,510	53,845,654	6,181,164	11,991,446	1,841,788	20,532,073	44,093,600	81.9	9,752,054	4,450,368	7,726,341	7,915,209	10,978,674
Northwestern Pacific	Dec.	351	133,822	43,951	211,080	40,368	46,541	4,437	110,272	216,572	102.6	—5,492	1,828	—4,042	—20,774	10,184
	12 mos.	372	1,967,381	886,403	3,281,424	446,856	592,255	49,305	1,809,361	3,066,258	93.4	215,166	76,382	—36,714	—8,010	140,052
Oklahoma City-Ada-Atoka	Dec.	132	38,401	477	41,032	Cr. 2,231	668	731	11,828	10,994	26.8	30,038	26,405	18,992	—829	18,999
	12 mos.	132	404,789	4,194	435,089	81,234	22,857	9,333	132,579	261,587	60.1	173,502	148,654	60,979	—10,377	61,075
Pennsylvania Railroad	Dec.	10,473	23,032,724	5,675,363	32,041,436	2,486,867	6,919,987	649,308	11,755,803	23,702,061	74.0	8,339,375	6,965,080	6,206,565	5,375,067	7,611,053
	12 mos.	10,473	272,047,435	59,797,179	367,812,186	32,550,696	70,090,781	7,210,989	131,793,479	263,100,184	71.5	104,712,002	79,327,256	70,394,641	64,135,287	91,295,718
Long Island	Dec.	396	502,602	1,368,039	1,968,718	139,037	378,538	31,122	942,874	1,561,510	79.3	407,208	239,195	78,038	463,777	168,785
	12 mos.	396	5,733,730	16,950,650	23,806,411	2,042,090	4,259,159	242,961	11,175,593	18,431,359	77.4	5,375,052	2,612,009	540,687	2,522,160	1,636,031
Pennsylvania-Reading Seashore Lines	Dec.	412	247,627	104,583	372,438	60,986	48,312	7,651	251,359	397,430	106.7	—24,992	—78,717	—148,432	—139,906	—138,287
	12 mos.	413	2,783,277	2,619,859	5,686,966	653,090	943,538	101,919	3,423,175	5,459,868	96.0	227,098	—683,198	—1,697,564	—1,817,395	—1,558,133
Pere Marquette	Dec.	2,115	2,445,131	69,735	2,681,057	235,926	510,557	63,342	930,433	1,829,026	68.2	852,031	770,479	646,214	128,583	856,223
	12 mos.	2,127	26,084,334	750,557	28,478,082	3,108,959	5,968,570	747,735	10,186,769	21,137,287	74.2	7,340,795	6,124,413	4,828,197	2,618,368	7,405,714
Pittsburg & Shawmut	Dec.	103	45,831	361	47,023	7,289	13,912	1,539	14,861	40,507	86.1	6,516	6,064	7,358	—5,887	13,509
	12 mos.	101	550,444	4,496	564,425	123,607	184,820	18,752	195,129	558,109	98.8	6,316	3,734	39,039	94,516	120,832
Pittsburgh & West Virginia	Dec.	138	261,379	.....	283,015	23,259	54,518	16,549	60,408	179,433	63.4	103,582	81,060	109,946	52,974	131,603
	12 mos.	138	2,833,978	.....	3,001,241	314,813	681,683	168,045	621,619	2,040,279	68.0	960,962	729,388	1,033,185	835,969	1,316,839
Pittsburg, Shawmut & Northern	Dec.	190	63,081	164	65,131	10,661	16,050	1,254	26,872	61,318	94.1	3,813	298	—3,598	4,441	—150
	12 mos.	190	879,513	1,514	898,683	192,711	193,589	16,237	351,132	830,695	92.4	67,988	40,507	—12,920	—57,694	19,734
Reading	Dec.	1,458	4,021,882	333,568	4,592,141	362,134	534,807	72,647	1,772,894	2,900,480	63.2	1,691,661	1,390,194	1,429,014	1,083,651	1,699,447
	12 mos.	1,459	45,684,508	3,077,347	51,373,733	3,935,089	8,550,742	905,824	20,037,575	35,752,145	69.6	15,621,588	12,021,288	12,562,360	12,856,973	15,701,808
Richmond, Fredericksburg & Potomac	Dec.	117	241,550	191,987	623,077	64,640	131,503	8,682	209,633	454,796	73.0	168,281	138,237	91,051	132,196	118,630
	12 mos.	117	3,373,918	1,681,634	6,507,586	694,935	1,468,972	103,308	2,683,415	5,407,515	83.1	1,100,071	791,446	375,857	443,987	702,170
Rutland	Dec.	407	159,552	29,160	248,296	24,849	56,635	9,973	142,323	243,895	98.2	4,401	—15,154	—12,850	8,699	—1,367
	12 mos.	407	2,137,054	384,420	3,213,312	534,294	662,648	128,553	1,631,103	3,127,879	97.3	85,433	—150,479	—138,481	—13,810	—2,473
St. Louis-San Francisco	Dec.	4,929	2,828,819	274,647	3,438,634	563,270	816,019	103,263	1,346,834	3,005,631	87.4	433,003	284,757	321,735	—49,290	578,771
	12 mos.	4,979	34,202,111	2,654,395	40,545,500	7,311,787	10,130,761	1,222,217	15,373,965	35,680,051	88.0	4,865,449	2,113,373	2,045,514	2,934,814	5,155,136
Ft. Worth & Rio Grande	Dec.	233	29,066	1,588	37,143	14,504	9,577	2,086	26,122	55,622	149.8	—18,479	—19,511	—23,913	—26,516	—21,362
	12 mos.	233	352,836	14,962	442,879	145,508	119,891	29,153	284,401	613,809	138.6	—170,930	—210,631	—265,161	—269,224	—231,669
St. Louis, San Francisco & Texas	Dec.	261	79,115	556	82,919	48,711	20,493	5,555	46,931	128,794	155.3	—45,875	—48,809	—73,548	—58,614	—67,351
	12 mos.	261	1,040,163	6,700	1,091,485	415,263	213,817	59,976	488,225	1,254,433	114.9	—162,948	—205,262	—503,422	—531,632	—432,597

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Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1935—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depr. & retir. 1935	1934	Before depr. & ret.
St. Louis Southwestern Lines	Dec.	1,784	$1,344,849	$21,948	$1,423,994	$138,270	$179,383	$76,404	$462,017	$924,667	64.9	$499,327	$452,349	$350,493	$9,521	$401,243
	12 mos.	1,788	14,854,267	206,918	15,742,228	1,733,466	2,154,521	872,004	5,175,577	10,735,734	68.2	5,006,494	4,152,088	2,644,318	1,958,645	3,266,362
San Diego & Arizona Eastern	Dec.	145	19,788	2,662	26,337	11,678	7,687	1,760	19,632	46,164	175.3	—19,827	—26,304	—24,394	—22,297	—21,869
	12 mos.	145	323,122	63,048	439,427	139,968	83,417	21,942	237,250	545,281	124.1	—105,854	—153,925	—138,102	—74,229	—109,678
Seaboard Air Line	Dec.	4,307	2,311,003	481,778	3,118,676	643,606	638,068	162,812	1,198,626	2,827,935	90.7	290,741	242,515	172,774	244,108	330,365
	12 mos.	4,307	26,657,911	3,656,270	33,944,811	5,464,243	7,380,839	1,720,760	13,060,407	29,394,024	86.6	4,550,787	2,317,873	1,501,943	1,631,913	3,380,559
Southern Ry.	Dec.	6,644	5,602,157	937,068	7,284,619	592,593	1,210,939	150,204	2,650,117	4,910,151	67.4	2,374,468	2,045,283	1,791,771	2,030,602	2,081,494
	12 mos.	6,644	66,674,111	8,388,170	82,903,703	10,059,064	15,285,263	1,737,550	30,325,545	60,948,976	73.5	21,954,727	16,868,144	14,290,530	12,665,358	17,407,901
Alabama Great Southern	Dec.	315	337,501	54,352	430,230	15,267	91,170	11,453	156,780	293,110	68.1	137,120	101,577	76,314	95,879	100,098
	12 mos.	315	4,288,052	546,385	5,260,872	977,798	1,222,241	134,226	1,773,369	4,326,836	82.2	934,036	599,368	429,547	661,908	687,936
Cinn., New Orleans & Texas Pacific	Dec.	336	962,509	105,729	1,146,952	137,847	222,242	19,797	314,651	738,971	64.4	407,981	267,358	248,499	340,473	297,628
	12 mos.	336	11,914,418	828,692	13,549,270	1,968,304	2,474,257	301,795	3,456,305	8,711,856	64.3	4,837,414	3,922,450	3,583,309	3,257,307	4,094,721
Georgia Southern & Florida	Dec.	397	121,786	36,154	180,536	3,997	31,746	1,775	67,502	110,439	61.2	70,097	70,018	67,975	62,548	75,234
	12 mos.	397	1,407,616	314,687	1,937,997	350,474	397,947	20,744	858,394	1,685,095	86.9	252,902	113,951	104,514	115,243	185,336
New Orleans & Northeastern	Dec.	204	156,115	19,980	193,068	24,952	29,300	5,267	62,610	132,569	68.7	60,499	40,824	20,904	29,899	27,122
	12 mos.	204	1,954,201	212,560	2,349,430	327,715	407,704	66,351	793,649	1,718,889	73.2	630,541	358,154	194,512	81,609	264,671
Northern Alabama	Dec.	99	43,622	2,291	48,082	10,802	1,175	754	15,596	30,219	62.8	17,863	14,248	14,363	24,620	14,443
	12 mos.	99	510,175	21,283	555,033	123,856	15,842	13,093	193,845	367,932	66.3	187,101	142,238	20,979	41,761	21,837
Southern Pacific	Dec.	8,782	7,725,743	1,669,585	10,481,450	860,618	1,791,121	287,250	4,097,442	7,855,206	74.9	2,626,244	2,113,977	1,742,713	1,369,933	2,224,877
	12 mos.	8,788	94,138,112	17,753,609	124,040,112	10,702,150	21,023,065	3,466,122	46,359,538	90,658,863	73.1	33,381,249	23,785,529	18,901,054	17,581,796	24,491,973
So. Pac. Steamship Lines	Dec.	....	330,405	2,766	344,361	14,426	102,192	18,783	236,307	390,940	113.5	—46,579	—47,305	—49,179	—34,176	—13,909
	12 mos.	....	4,416,496	149,187	4,713,713	179,607	1,069,707	196,516	3,557,923	5,222,108	110.8	—508,395	—518,888	—549,453	—770,255	—128,542
Texas & New Orleans	Dec.	4,429	2,509,546	277,183	3,156,597	466,504	543,973	117,605	1,062,882	2,409,960	76.3	746,637	569,727	398,341	362,535	535,706
	12 mos.	4,436	27,536,825	2,871,646	34,627,686	4,794,594	6,577,425	1,363,713	12,630,640	28,017,188	80.9	6,610,498	4,145,258	1,968,279	192,117	3,635,774
Spokane, Portland & Seattle	Dec.	552	421,229	43,599	506,854	50,131	52,468	6,631	189,504	316,450	62.4	190,404	142,579	108,300	197,401	122,228
	12 mos.	552	5,286,542	495,381	6,215,141	515,691	766,896	75,394	2,008,114	3,532,745	56.8	2,682,396	2,081,629	1,739,173	1,540,713	1,906,305
Tennessee Centr'l	Dec.	286	171,694	6,991	190,897	39,457	34,111	4,798	65,112	152,491	79.9	38,406	34,022	22,312	22,512	28,305
	12 mos.	286	2,052,962	64,576	2,250,933	393,118	328,814	59,999	748,555	1,625,277	72.2	625,656	560,417	410,331	335,407	478,531
Texas & Pacific	Dec.	1,949	1,639,645	250,562	2,108,406	176,070	366,521	71,135	648,680	1,388,006	65.8	720,400	592,614	561,032	390,179	661,937
	12 mos.	1,949	18,571,394	2,146,414	23,479,956	2,407,946	4,101,069	831,928	7,127,783	15,990,556	68.1	7,489,400	6,192,760	5,052,104	4,732,752	6,262,936
Texas Mexican	Dec.	162	85,776	340	95,088	19,940	14,162	3,405	34,863	79,480	83.6	15,608	13,641	6,105	23,032	7,833
	12 mos.	162	1,062,639	5,312	1,194,962	183,973	176,316	39,003	402,611	882,019	73.8	312,943	265,451	188,883	144,796	211,627
Toledo, Peoria & Western	Dec.	239	159,927	10	162,027	33,243	9,642	17,355	43,850	116,277	71.8	45,750	34,249	19,600	34,915	22,086
	12 mos.	239	1,816,644	175	1,844,594	477,224	123,420	188,161	479,163	1,377,685	74.7	466,909	393,388	212,988	159,765	241,092
Union Pacific	Dec.															
	12 mos.							(Figures not yet available)								
Oregon Short Line	Dec.															
	12 mos.															
Ore., Washington R. R. & Nav. Co.	Dec.															
	12 mos.							(Figures not yet available)								
Los Angeles & Salt Lake	Dec.															
	12 mos.															
St. Joseph & Grand Island	Dec.															
	12 mos.							(Figures not yet available)								
Utah	Dec.	111	128,470	.....	129,006	5,345	24,618	486	30,660	64,391	49.9	64,615	54,716	50,385	45,355	57,284
	12 mos.	111	1,058,311	.....	1,061,452	147,799	256,272	5,990	240,219	706,110	66.5	355,342	244,584	198,865	—35,184	281,625
Virginian	Dec.	619	1,368,863	4,731	1,424,915	95,330	240,557	16,736	236,881	592,310	41.6	832,605	642,605	694,326	627,211	779,292
	12 mos.	619	15,146,865	41,911	15,783,580	1,171,224	2,793,482	209,053	2,735,041	7,178,098	45.5	8,605,482	6,685,452	7,240,264	6,772,558	8,260,009
Wabash	Dec.	2,447	2,260,218	228,091	3,748,135	381,072	654,605	137,204	1,338,969	2,629,541	70.2	1,118,594	1,080,990	841,078	431,477	1,020,651
	12 mos.	2,447	36,495,558	2,222,113	41,492,889	4,823,318	7,060,146	1,671,078	15,832,458	31,246,552	75.3	10,246,337	8,720,187	5,213,899	4,355,273	7,391,701
Ann Arbor	Dec.	293	316,389	3,898	378,650	25,468	76,030	11,478	138,034	266,506	81.8	62,144	40,157	18,990	29,231	39,830
	12 mos.	293	3,790,741	39,575	3,959,274	328,456	839,578	139,132	1,595,897	3,060,302	77.3	898,972	727,319	482,558	374,659	735,146
Western Maryland	Dec.	883	1,235,262	7,465	1,279,984	139,533	237,898	37,111	326,918	788,642	61.6	491,342	415,130	442,673	375,891	528,935
	12 mos.	883	14,270,367	80,607	14,791,403	1,979,202	3,433,022	437,197	3,734,934	10,205,419	69.0	4,585,984	3,799,772	4,107,677	4,106,178	5,253,128
Western Pacific	Dec.	1,213	995,796	21,139	1,042,355	127,761	177,538	54,634	425,060	830,249	79.7	212,106	155,567	95,064	78,869	146,634
	12 mos.	1,213	12,200,245	371,757	12,907,071	2,369,169	2,147,458	666,457	4,991,322	10,594,942	82.1	2,312,129	1,626,176	1,016,313	1,267,422	1,582,556
Wheeling & Lake Erie	Dec.	511	1,192,752	2,487	1,257,836	93,953	294,145	30,202	347,619	794,169	63.1	463,667	403,783	426,338	347,745	527,879
	12 mos.	511	12,686,433	17,528	13,497,874	1,788,199	3,484,189	363,859	3,925,694	9,901,688	73.4	3,596,186	2,619,346	2,670,574	1,764,829	3,896,298
Wichita Falls & Southern	Dec.	203	42,450	35	47,400	7,911	6,838	2,138	19,352	38,355	80.92	9,045	10,575	7,731	4,174	10,708
	12 mos.	203	507,266	577	560,520	96,143	79,387	21,800	181,172	415,054	74.05	145,466	121,688	89,395	47,951	119,520